DCY

2630 GreenStar Display

OPERATOR'S MANUAL

2630 GreenStar Display

OMPFP11075 ISSUE F1 (ENGLISH)

CALIFORNIA

Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

If this product contains a gasoline engine:

⚠ WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

The State of California requires the above two warnings.

Additional Proposition 65 Warnings can be found in this manual.

John Deere Ag Management Solutions

(This manual replaces OMPFP10724)

OMPFP11075

Introduction

www.StellarSupport.com

NOTE: Product functionality may not be fully represented in this document due to product changes occurring after the time of printing. Read the latest Operator's Manual and Quick Reference Guide prior to operation. To obtain a copy, see your dealer or visit www.StellarSupport.com

OUO6050,0000FB1 -19-10AUG10-1/1

Read This Manual

Before operating display/software, familiarize yourself with components and procedures required for safe and proper operation.

IMPORTANT: The following GreenStar components are not weather-proof and should only be used on vehicles equipped with a cab. Improper use may void warranty.

- **Original GreenStar Display and Mobile Processor**
- **GreenStar Displays**
- **AutoTrac Universal Steering Kit**

JS56696,0000491 -19-04JUN10-1/1

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A John Deere ILLUSTRUCTION ® Manual

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Recognize Safety Information

This is a safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.



T81389 —UN—07DEC88

DX,ALERT -19-29SEP98-1/1

Understand Signal Words

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.



TS187 —19—30SEP88

DX,SIGNAL -19-03MAR93-1/1

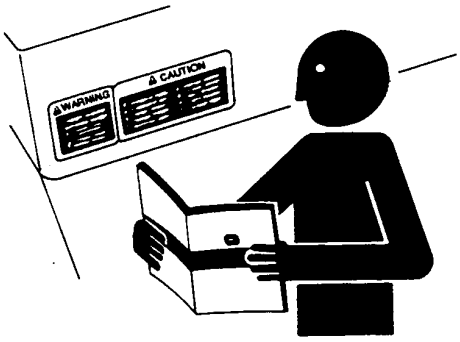
Follow Safety Instructions

Carefully read all safety messages in this manual and on your machine safety signs. Keep safety signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from your John Deere dealer.

There can be additional safety information contained on parts and components sourced from suppliers that is not reproduced in this operator's manual.

Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

Keep your machine in proper working condition. Unauthorized modifications to the machine may impair the function and/or safety and affect machine life.



TS201 —UN—23AUG88

If you do not understand any part of this manual and need assistance, contact your John Deere dealer.

DX,READ -19-16JUN09-1/1

Avoid Backover Accidents

Before moving machine, be sure that all persons are clear of machine path. Turn around and look directly for best visibility. Use a signal person when backing if view is obstructed or when in close quarters.

Do not rely on a camera to determine if personnel or obstacles are behind the machine. The system can be limited by many factors including maintenance practices, environmental conditions, and operating range.



PC10857XW —UN—24JUN10

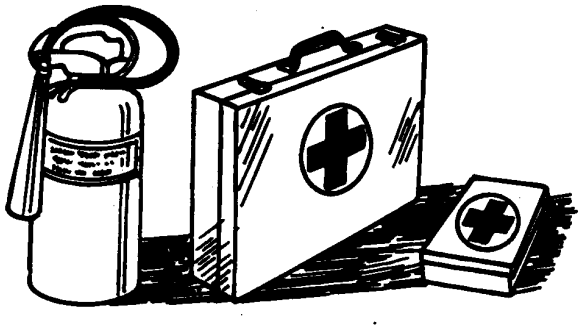
DX,AVOID,BACKOVER,ACCIDENTS -19-30AUG10-1/1

Prepare for Emergencies

Be prepared if a fire starts.

Keep a first aid kit and fire extinguisher handy.

Keep emergency numbers for doctors, ambulance service, hospital, and fire department near your telephone.



TS291 —UN—23AUG88

DX,FIRE2 -19-03MAR93-1/1

Practice Safe Maintenance

Understand service procedure before doing work. Keep area clean and dry.

Never lubricate, service, or adjust machine while it is moving. Keep hands, feet , and clothing from power-driven parts. Disengage all power and operate controls to relieve pressure. Lower equipment to the ground. Stop the engine. Remove the key. Allow machine to cool.

Securely support any machine elements that must be raised for service work.

Keep all parts in good condition and properly installed. Fix damage immediately. Replace worn or broken parts. Remove any buildup of grease, oil, or debris.

On self-propelled equipment, disconnect battery ground cable (-) before making adjustments on electrical systems or welding on machine.

On towed implements, disconnect wiring harnesses from tractor before servicing electrical system components or welding on machine.



TS218 —UN—23AUG88

DX,SERV -19-17FEB99-1/1

Operate Guidance Systems Safely

Do not use AutoTrac system on roadways.

- Always turn off (Deactivate and Disable) AutoTrac system before entering a roadway.
- Do not attempt to turn on (Activate) AutoTrac system while transporting on a roadway.

The AutoTrac system is intended to aid operator in performing field operations more efficiently. Operator is always responsible for machine path. To prevent injury to operator and bystanders:

- Remain alert and pay attention to surrounding environment.
- Take control of steering wheel when necessary to avoid field hazards, bystanders, equipment, or other obstacles.
- Stop operation if poor visibility conditions impair your ability to operate the machine or identify people or obstacles in machine path.
- Consider field conditions, visibility, and vehicle configuration when selecting vehicle speed. For example, use duals when using AutoTrac at high speeds on tractors.

CZ76372,0000281 -19-11JAN11-1/1

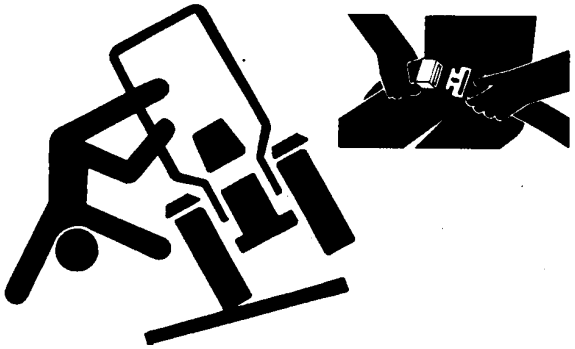
Use Seat Belt Properly

Use a seat belt when you operate with a roll-over protective structure (ROPS) or cab to minimize chance of injury from an accident such as an overturn.

Do not use a seat belt if operating without a ROPS or cab.

Replace entire seat belt if mounting hardware, buckle, belt, or retractor show signs of damage.

Inspect seat belt and mounting hardware at least once a year. Look for signs of loose hardware or belt damage, such as cuts, fraying, extreme or unusual wear, discoloration, or abrasion. Replace only with replacement parts approved for your machine. See your John Deere dealer.



TS205 —UN—23AUG88

DX,ROPS1 -19-29OCT07-1/1

Read Operator Manuals for ISOBUS Implements

In addition to GreenStar Applications, this display can be used as a display device for any implement that meets ISO 11783 standard. This includes capability to control ISOBUS implements. When used in this manner, information and implement control functions placed on the display are provided by the implement and are the responsibility of the implement manufacturer. Some of these implement functions could provide a hazard either to the Operator or a bystander. Read the operator manual provided by the implement manufacturer and observe all safety messages in manual and on implement prior to use.

NOTE: ISOBUS refers to the ISO Standard 11783

DX,WW,ISOBUS -19-19AUG09-1/1

Handle Electronic Components and Brackets Safely

Falling while installing or removing electronic components mounted on equipment can cause serious injury. Use a ladder or platform to easily reach each mounting location. Use sturdy and secure footholds and handholds. Do not install or remove components in wet or icy conditions.

If installing or servicing a RTK base station on a tower or other tall structure, use a certified climber.

If installing or servicing a global positioning receiver mast used on an implement, use proper lifting techniques and wear proper protective equipment. The mast is heavy and can be awkward to handle. Two people are required when mounting locations are not accessible from the ground or from a service platform.



TS249 —UN—23AUG88

DX,WW,RECEIVER -19-24AUG10-1/1

Implement Detected Warning

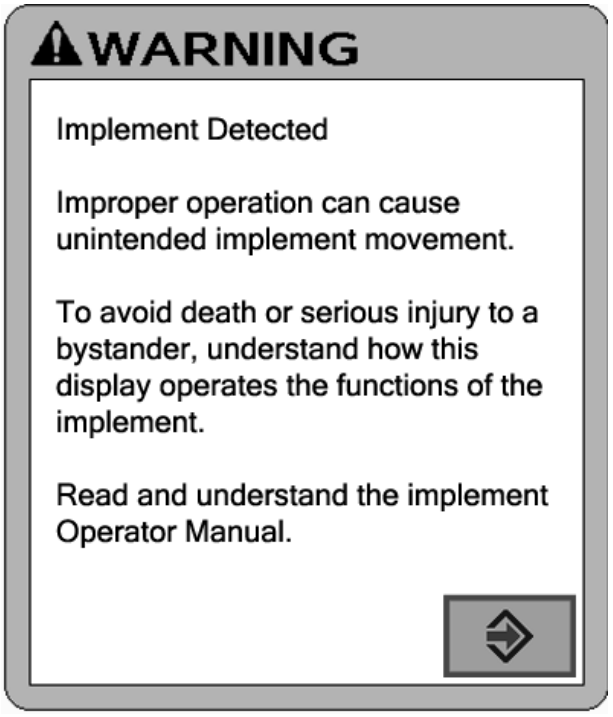
CAUTION: Implement Detected

Improper operation can cause unintended implement movement.

To avoid death or serious injury to a bystander, understand how this display operates the functions of the implement.

Read and understand the implement Operator Manual.

This message occurs when the system detects an ISOBUS implement. For more information, see READ OPERATOR MANUALS FOR ISOBUS IMPLEMENTS in the Safety section.


WARNING
Implement Detected
Improper operation can cause unintended implement movement.
To avoid death or serious injury to a bystander, understand how this display operates the functions of the implement.
Read and understand the implement Operator Manual.

PC10339 —UN—23SEP07

OUO6050,0000E6B -19-06OCT08-1/1

Automatic Guidance System Detected

CAUTION: Automatic Guidance System Detected. Activating a guidance system on roadways may cause loss of vehicle control.

To avoid death or serious injury, disable the guidance system before entering roadways.

This message occurs during startup on vehicles with an Automatic Guidance System installed.


WARNING
Automatic Guidance System Detected. Activating a guidance system on roadways may cause loss of vehicle control.
To avoid death or serious injury, disable the guidance system before entering roadways.

PC12314 —UN—05OCT09

OUO6050,0000DCD -19-05OCT09-1/1

Auxiliary Control Safety Signs

Auxiliary Control Detected

CAUTION: Auxiliary Control Detected

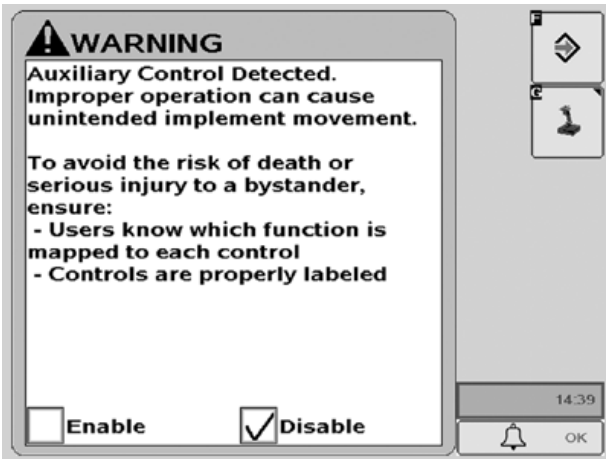
Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when the system detects an Auxiliary Control. Press “Enter” key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the “Controls” key **G** to review or change the Auxiliary Control assignments.

If “**Disable**” is selected (default), all Auxiliary Controls will be disabled.


WARNING
Auxiliary Control Detected.
Improper operation can cause unintended implement movement.
To avoid the risk of death or serious injury to a bystander, ensure:
- Users know which function is mapped to each control
- Controls are properly labeled
Enable
Disable
14:39
OK
ZX1042319 —UN—04DEC08

If “**Enable**” is selected, all Auxiliary Controls will be enabled.

CZ76372,0000282 -19-12JAN11-1/4

Auxiliary Control Configuration Changed

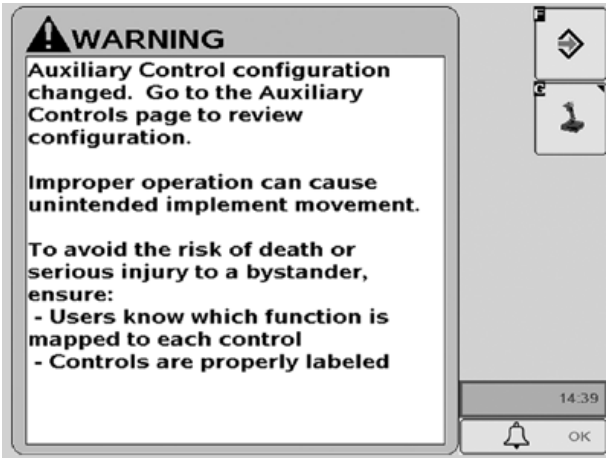
CAUTION: Auxiliary Control configuration changed. Go to the Auxiliary Controls page to review configuration.

Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when the system detects an Auxiliary Control and that configuration has been modified during run time (e.g. additional input and/or implement added). Press “Enter” key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the


WARNING
Auxiliary Control configuration changed. Go to the Auxiliary Controls page to review configuration.
Improper operation can cause unintended implement movement.
To avoid the risk of death or serious injury to a bystander, ensure:
- Users know which function is mapped to each control
- Controls are properly labeled
14:39
OK
ZX1042512 —UN—04DEC08

“Controls” key **G** to review or change the Auxiliary Control assignments.

Continued on next page

CZ76372,0000282 -19-12JAN11-2/4

Auxiliary Control Enabled

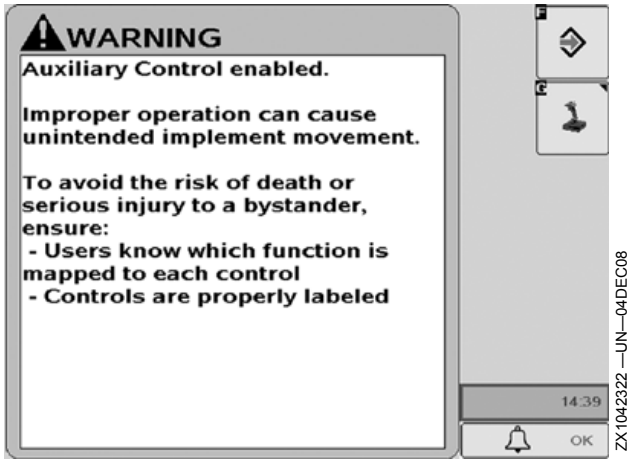
CAUTION: Auxiliary Control enabled.

Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when the operator enables the Auxiliary Control manually. Press “Enter” key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the “Controls” key **G** to review or change the Auxiliary Control assignments.


WARNING
Auxiliary Control enabled.
Improper operation can cause unintended implement movement.
To avoid the risk of death or serious injury to a bystander, ensure:
- Users know which function is mapped to each control
- Controls are properly labeled
14:39
OK
ZX1042322 —UN—04DEC08

CZ76372,0000282 -19-12JAN11-3/4

Auxiliary Control Enabled

CAUTION: Auxiliary Control enabled. Some requested assignments are not complete.

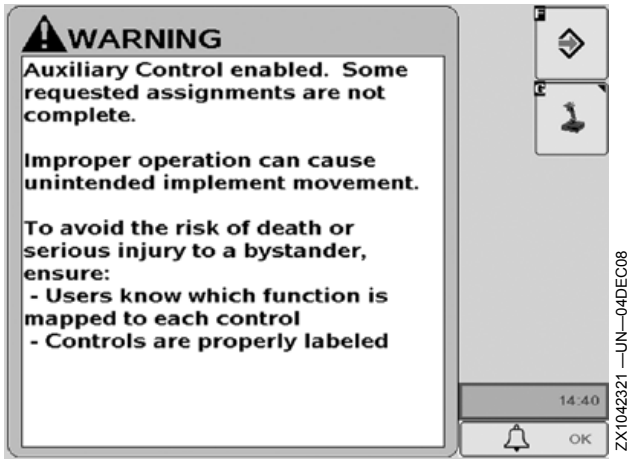
Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when Auxiliary Control has been enabled manually, however, not all assignments have been completed successfully. Press “Enter” key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the “Controls” key **G** to review or change the Auxiliary Control assignments.

IMPORTANT: If the “Enter” key F is selected, the implement only follows the assignments which have been completed successfully, however, there are still assignments which are not complete. It is necessary to review the Auxiliary Controls mapping screen by pressing the “Controls” key G and complete all assignments before enabling Auxiliary Controls.


WARNING
Auxiliary Control enabled. Some requested assignments are not complete.
Improper operation can cause unintended implement movement.
To avoid the risk of death or serious injury to a bystander, ensure:
- Users know which function is mapped to each control
- Controls are properly labeled
14:40
OK
ZX1042321 —UN—04DEC08

CZ76372,0000282 -19-12JAN11-4/4

Theory of Operation

IMPORTANT: It is important to follow proper use guidelines with the touchscreen on the 2630 GS3 display. Do not contact the touchscreen with an object harder or sharper than a fingertip (pen, pencil point, or any metal objects). Heavy pressure can also damage underlying components and void the touchscreen warranty. Light amounts of pressure, if exerted continuously, can degrade touchscreen reliability.

The display is primarily used as an operator interface for guidance and documentation applications.

The primary navigational point of the display is the touchscreen which allows the operator to input information by touching the screen. The 2630 can also use the display control which allows use of input buttons and thumb wheel.

GreenStar Basics Software

The display comes standard with a basic software feature set:

- Manual Guidance
- Documentation (field and harvest)
- On-Screen Mapping
- Prescriptions
- ISOBUS VT functionality

When connected to a GPS receiver, the system allows the operator to drive vehicle with the aid of GPS. When combined with an optional AutoTrac activation, and vehicle steering kit, system can automatically guide machine though the field.

Documentation can be used to record data tied to GPS coordinates. On some machines, rates, yield, implement width, or other information is recorded from the vehicle CAN Bus. The displays can also be connected to certain 3rd-Party control units to record rate information. This data is collected on the display memory and can be unloaded using a USB drive into desktop software to produce maps and reports of field activities.

NOTE: 3rd-Party control units are control units using RS232 connection (Field Doc Connect) and ISOBUS compliant control units supporting Task Controller functionality.

On-screen mapping uses GPS, and a recording source to create real-time maps of field activities. Operators are able to see the areas or the as applied maps of the field they have covered.

Original GreenStar Monitor function can be used to operate selected John Deere implements as they would normally be used with the original GreenStar display. The 2630 is also mounted in tandem with an original GreenStar display.

The 2630 display has an integrated performance monitor that can be used to record area and other data based on implement width and ground speed.

Display can also be used for machines and systems that conform to implementation level 2 of International Organization for Standardization ISO 11783. The purpose of ISO 11783 is to enable electronic units to communicate with each other providing a standardized system that is easy to read and understand. The operator can use the display as a tractor performance monitor and a monitor for an ISO 11783 compliant implement.

Software updates are published at www.StellarSupport.com. Each display also comes with a GreenStar Live Update CD. Live Update can be installed on an internet connected PC and alert the user when updates to the display are available. Live Update guides the user through the downloading process. The download is stored on a USB drive, and inserted into the display to complete the update.

CZ76372,0000285 -19-12JAN11-1/1

Front of Display

LED (B) indicates power mode of display:

Cold boot progress bar is black with a yellow background.

Cold boot-up occurs when the GS3 display has been powered down for over 6 hours or loses unswitched power. It takes 60-80 seconds to power up.

Warm boot progress bar is yellow with a black background.

Warm boot-up occurs when the GS3 display has been operating in the last 6 hours and has NOT lost unswitched power during that time. It takes 20-30 seconds to power up.

Shutting Down or Standby mode LED is orange.

IMPORTANT: If LED is FLASHING ORANGE and the screen is blank, an out of range temperature condition is detected. Turn unit off to prevent damage to the display.

Operating Temperature Range
-20° to 70° C (-4° to 158° F)
Storage Temperature
-40° to 85° C (-40° to 185° F)

Status of the LED is green when display is on, orange when display is starting up and shutting down. If the LED is RED, the unit is not operational. Turn unit off. The display has encountered an error or issue and is working to recover.

IMPORTANT: Always clean screen display with power off. Cleaning screen while operating could result in unintended button selections.



PC12701 —UN—20JUL10

display

A—Display
B—LED (Power Light)
C—USB Connections

To clean display, power down and wipe screen with a soft cloth sprayed with a non-ammonia based cleaner such as John Deere glass or multipurpose cleaner.

USB connection used to transfer data to and from display and also updating software. Most USB drives will work with the display.

NOTE: The display has two USB connections for redundancy in case one was to fail. Only one USB drive may be inserted at a time. The USB connections are meant for data transfer and reprogramming only.

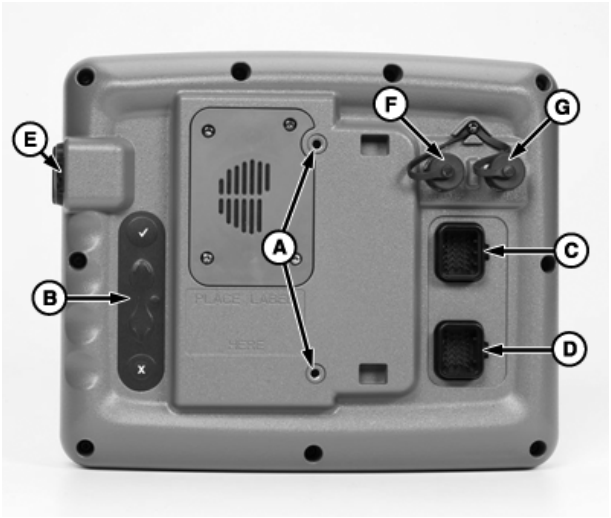
CZ76372,0000283 -19-12JAN11-1/1

Back of Display

Backside of Display contains:

- Display Mounting Holes—attach to bracket on machine.
- Secondary Navigational Point—provides backup navigation with display.
- Display Connector—connects vehicle wiring harness plugs with display for system power and communication.
- Video Connector—connects video source to display.
- USB Connections—holds USB drive used for data collection and saving selected display and implement settings.
- Ethernet Connector—With an adapter, an Ethernet cable can be used in the future.
- USB Connector—With an adapter, a USB cable can be used in the future.

NOTE: Backside of display will have label with display model and serial number on it.



PC12702 —UN—20JUL10

A—Display mounting holes
B—Secondary navigation
C—Primary Display connector
D—Video Connector
E—USB Connections
F—Ethernet Connector (Future Use)
G—USB Connector (Future Use)

CZ76372,0000284 -19-12JAN11-1/1

USB Drive

USB Drive Requirements for John Deere Displays

Most USB drives are compatible with John Deere displays. Note the following USB drive requirements:

- Format - Windows FAT or FAT32. This display will not recognize NTFS format.
- Capacity - There are no specific limits to the memory capacity of the drive
- Connectivity - USB 2.0
- Maximum Dimensions - 9.2 mm thick by 21.7 mm wide

Best Practices

- Wait 10 seconds, because large USB drives may take time to be recognized.
- Use a USB drive that is 4GB or larger, so multiple Backups can be stored.
- Clean all files off the USB drive that are not associated with John Deere displays.

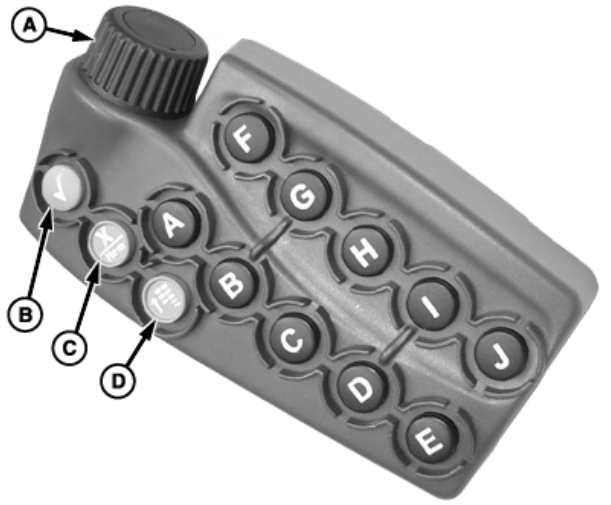
CZ76372,0000287 -19-12JAN11-1/1

Display Control

CAUTION: Do not mount display control on the side of dual displays (2630 and Original GreenStar Dispaly). This blocks the operator's view and overloads the bracket. Mount the display control elsewhere.

The display control is the secondary navigational point on the GreenStar Display.

The display control contains 10 available short-cut softkeys A-J, Thumb Wheel (A), ENTER button (B), CANCEL button (C), and MENU button (D).



PC8864 —UN—09JAN06

Display Control

A—Thumb Wheel
B—ENTER button
C—CANCEL button
D—MENU button

CZ76372,000012E -19-13AUG10-1/1

Display Secondary Navigation

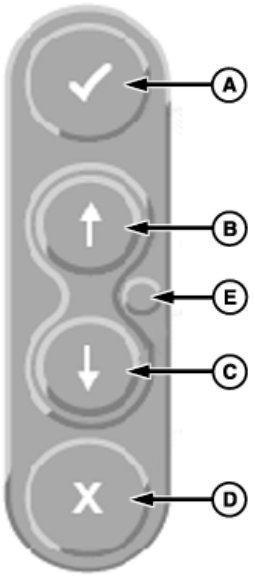
Secondary display controls consist of five buttons located on backside of display. They provide backup navigation in the event that the primary display controls are not communicating with display.

ENTER button (A) and CANCEL button (D) operate the same as they do on the primary display controls.

Up Arrow (B) and Down Arrow (C) simulate thumb wheel operation on display control.

DISPLAY RESET button (E) resets display without cycling power on vehicle. Hold for 3 seconds to reboot.

A—Enter
B—Up arrow
C—Down arrow
D—Cancel
E—Display reset



Display Secondary Navigation

OUO6050,000229E -19-20NOV06-1/1

Capturing Screenshots

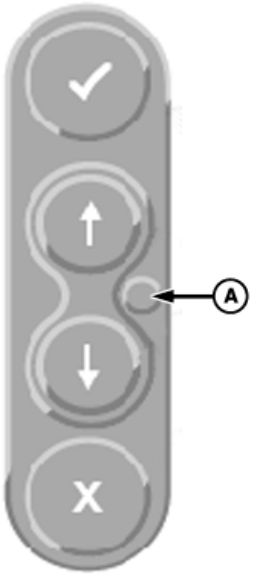
DISPLAY RESET button (A) can be used to capture screenshots from the 2630 display. Press the DISPLAY RESET button (A) for approximately one second.

A successful screen capture is indicated by the front LED (power light) changing to color red and back to green again.

Screenshots captured on the display will be stored on the display's internal memory until they are transferred to a USB flash drive.

NOTE: To transfer screenshots to a USB flash drive, please see DATA TRANSFER OPTIONS and EXPORTING DATA FROM THE DISPLAY sections in this manual.

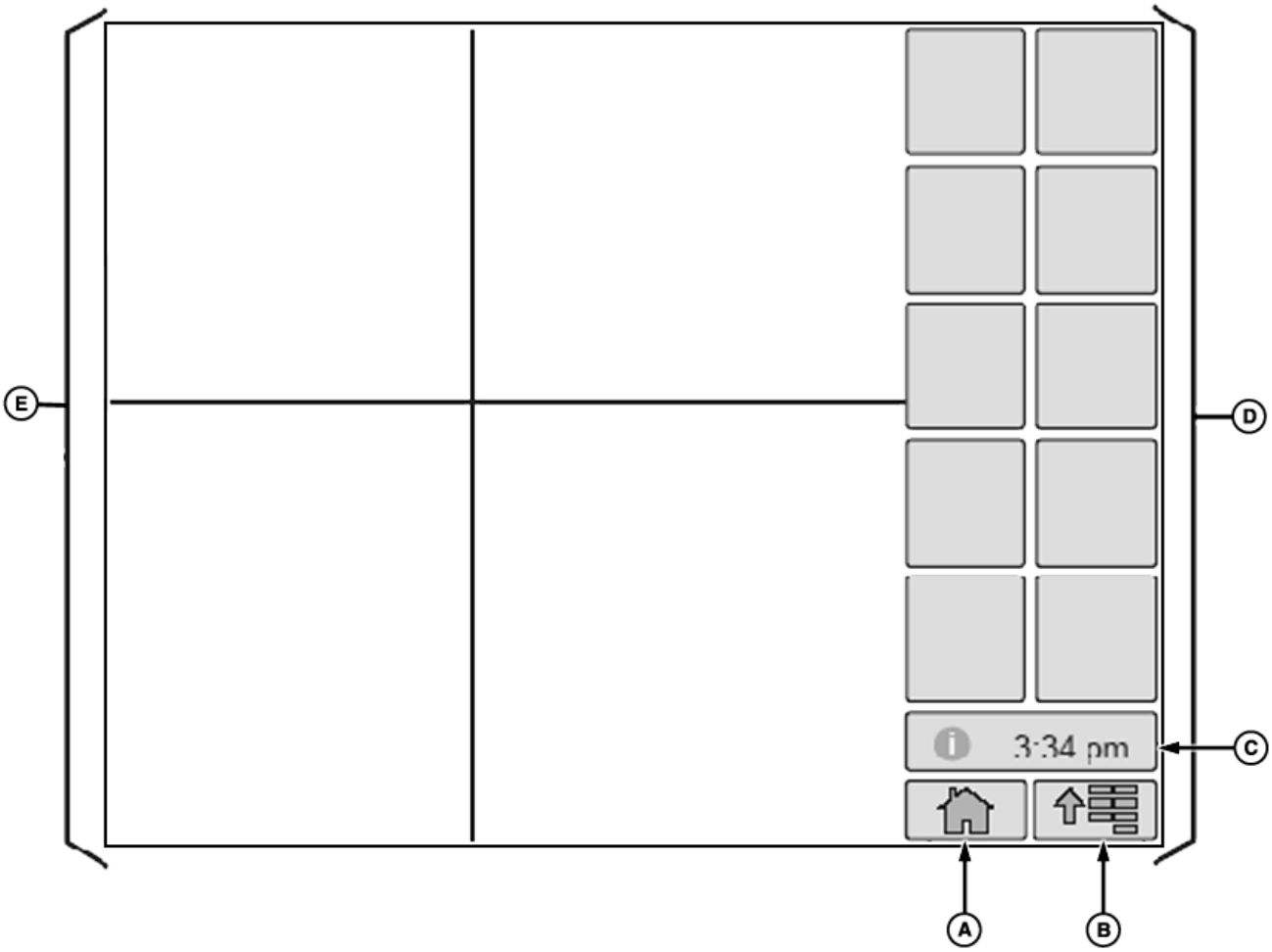
A—Display Reset



Display Secondary Navigation

JS56696,0000A28 -19-13JUN11-1/1

Screen Layout



Screen Layout

A—Home
B—Menu
C—Message Center
D—softkeys
E—Application Info Area

NOTE: Display screen illustrated on following pages are provided for reference only. Actual screens may appear differently due to connection of optional devices and/or software versions.

Home (A), Menu (B) and Message Center (C) selections will be available on most screens.

- Home selection—allows operator to view Home Page.
- Menu selection—allows operator to view a list of available applications.
- Message Center selection—allows operator to view alarm messages and diagnostic information. (See SETUP MESSAGE CENTER in Display Message Center section.)

Selecting one of the softkeys (D) will cause a new page to appear or a process to be started.

CZ76372,0000297 -19-12JAN11-1/1

Installation in Most GreenStar Ready Machines

A—Corner Post Mounts

B—Wing Nuts (2 Used)

C—Vehicle Display Connector

D—Connector on Display

1. Turn OFF vehicle.
2. Attach bracket to corner post mounts (A).
3. Attach display to bracket using the wing nuts (B) (provided with display).
4. Attach harness to the corner post connector (C) and the lower connector on the back of the display (D).
5. Position the display so that it is comfortable to reach and does not obstruct your view.

IMPORTANT: Display must be connected to SWITCHED and CONSTANT power. This allows the display to shutdown properly and save data. When the key is switched off, a 'Saving Settings' message should appear on the screen.

NOTE: Bracket and harness are sold separately. Uses the same brackets and harnesses as GS2 displays.

OUO6050,000128E -19-19JUL10-1/1

Installation in a John Deere Vehicle with an ISOBUS Display

One John Deere ISOBUS display may be installed on the corner post of a John Deere vehicle that has an ISOBUS compatible display installed on the armrest, such as an 8R Command Center. Examples of John Deere ISOBUS displays that can be installed on the corner post include GS2 1800, GS2 2100, GS2 2600, and GS3 2630. Some applications will automatically be turned OFF on the armrest display because they cannot run on two displays on the same CANbus. The Implement Bus may be turned ON or OFF on the armrest display, depending on user preference

Installation

1. Turn OFF vehicle
2. Attach the display harness to the corner post connector and the 26-pin display connector on the back of the display.
3. Turn ON the vehicle. The armrest display may display a message stating that another John Deere display has been detected. If it does not, see the vehicle Operator Manual to check that the Multiple Display settings are set correctly on the armrest display.
4. Restart the vehicle so that both displays can reboot.

When both displays power up, some applications will be set to ON or OFF on each display, as shown in the table below. If the armrest display MODE, found on the Multiple Display Settings page is set to CUSTOM and the applications are not set as desired, select RESTORE TO DEFAULT SETTINGS on the Multiple Display Settings on the armrest display.

Application	Corner Post Display	Armrest Display
GreenStar	ON	OFF
Original GreenStar Display Emulator	ON	OFF
Implement Bus	ON	OFF
Controller Programming	ON	OFF
Task Controller	ON	ON

Default Multiple Display Configuration

Implement Bus is the only application that can be user configured to be ON or OFF on the armrest display. Turn the Implement bus OFF for all ISO Implement applications to move to the other display.

NOTE: The armrest display may not function properly if a third-party display is connected to the Implement Bus. It is recommended that a second CANbus be installed if problems occur.

CZ76372,000028F -19-12JAN11-1/1

Moving ISO Implement Applications between Two ISOBUS Displays

When the display is installed on newer John Deere vehicles that have an ISOBUS compatible display installed on the armrest, ISO implements can appear on either display. Select Menu on each display to find the implement icons for any ISO implements that are connected, such as SeedStar2, StarFire receiver, or GS Rate Controller. There are two possible ways to move ISO Implement applications to the other display.

Some ISO Implements are designed to remember which display they were on last and return to that display each time the vehicle is started. These implements can be moved from one display to the next using a button found within the Settings pages of the implement application.

This function is sometimes called NEXT VT. Read the implement operator manual to determine whether it has this functionality and how to use it.

Other ISO Implements will appear on the display that boots up first each time the vehicle is started. If the user prefers that these implements always appear on the corner post display, turn OFF Implement Bus communication on the armrest display. Read the vehicle operator manual to learn how to turn the Implement bus OFF on the armrest display. The setting is found in the display settings on the armrest display.

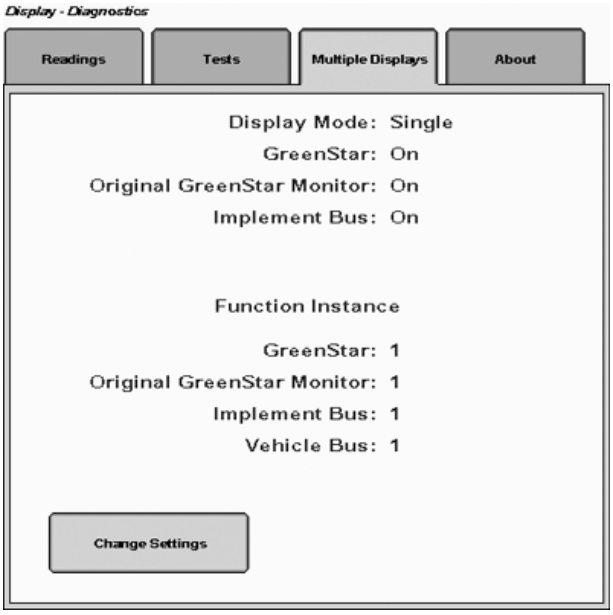
NOTE: The corner post display must always have Implement Bus communication turned ON for GreenStar applications to work properly.

OUO6050,0001290 -19-20JUL10-1/1

View Multiple Display Settings

1. Menu
2. Display
3. Display Diagnostics softkey
4. Multiple Displays tab

View the Multiple Displays setting page to determine current display mode and the on/off status for GreenStar Apps, Original GreenStar Monitor, and Implement Bus VT.



Multiple Display Settings

CZ76372,0000175 -19-28SEP10-1/1

Managing User Access—Theory of Operation

Access Manager is used to manage user access to almost any function on the display. Functions can be locked for the operator to simplify the user experience and reduce accidental settings changes. Once functions are locked for “Operator Mode”, a password is required to enter “Owner Mode” and access those functions. The current password can be retrieved using Message Center. It is stored in Diagnostic Address 62. See the Troubleshooting and Diagnostics section for how to view Diagnostic Addresses.

Dual Display Operation

The GS3 2630 display maybe installed on the corner post of a John Deere vehicle that also has a display on the armrest running Access Manager. In this case, the Access Manager settings and Mode are NOT transferred automatically between the displays and must be set on each display individually.

CZ76372,0000167 -19-16SEP10-1/1

Power Up

IMPORTANT: Do not remove 12 volt power from display until the LED light is black. Prematurely removing power (green or orange light status) may cause loss of data and/or the display to lose functionality. It may take up to 20 seconds after removing key power for the LED light to completely go black.

IMPORTANT: When setting up the display with vehicle key in the accessory position (power on, engine off), turn key to OFF position for 20 seconds BEFORE starting the vehicle. This will ensure the setup data is saved to the internal memory prior to operating.

If the vehicle is running during setup and programming, turn the vehicle off with key in the OFF position and wait 30 seconds before restarting. This ensures that all data is saved to the internal memory.

DO NOT turn the key to the start position directly from the accessory position. The reduction in voltage during the starting phase could result in a loss of all setup data.

IMPORTANT: If changes are made while machine is in auxiliary mode, turn key off and wait for display's power light to turn off before starting the ignition. This allows display to shut down and save data.

During power up of display, a start-up screen will show a status bar that indicates display is powering up. Once the display has powered up, if no implement is connected, a default performance monitor screen will be shown. If an ISO implement is connected, that implement's information will be shown in application info area along with ten softkeys.

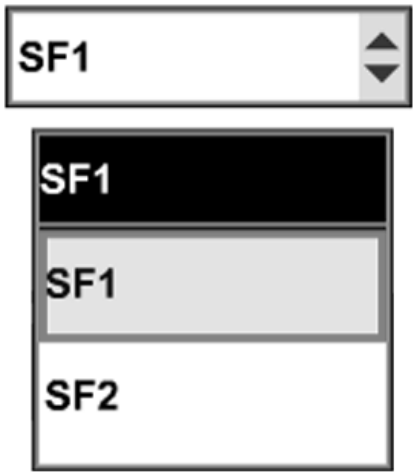
Input Fields

There are a variety of input fields and buttons that allow the operator to navigate through the screens on the display and input values:

- Drop-Down Box
- Input Box
- Check Box
- Button

Fields are selected by touching screen. Keypad will appear to input alpha/numeric data.

PC8845 —UN—30OCT05



PC8846 —UN—30OCT05

Drop-Down Box

A drop-down box has a border with a numeric or text value and up/down arrows on the right side that allow operator to select a pre-populated item in a list.

To open, highlight drop-down box and press ENTER button. List will appear. Rotating thumb wheel will allow operator to move highlight focus through list to desired input value. Pressing ENTER button will select new value.

To close the drop-down box without making a selection, press CANCEL button. List will close and original value will remain.

Continued on next page

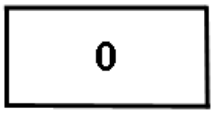
Input Box

An input box has a border with a numeric value or text. This allows the operator to select and enter new values or text.

To change a value, highlight Input box and press ENTER button. To cancel out of an input box, press CANCEL button to keep the original value.

A numeric keypad will appear, allowing selection of each digit.

PC8847 —UN—30OCT05



Display uses a pop-up keyboard to enter values.

CZ76372,0000298 -19-12JAN11-2/4

Check Box

A check box is a square with a border. A check mark in the box indicates that the box is activated.

To activate a check box, highlight empty check box and press ENTER button. A check will appear inside box activating item. To deactivate a check box, highlight check box and press ENTER button to remove the check.

PC8686 —UN—09AUG05



CZ76372,0000298 -19-12JAN11-3/4

Button

A button is an icon or text with a border. Activating a button will perform that icon's function.

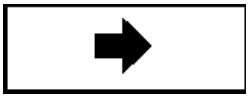
To activate a function, highlight the button and press enter.

PC8649 —UN—01NOV05



ENTER

PC8650 —UN—01NOV05



GOTO

CZ76372,0000298 -19-12JAN11-4/4

Display Software Activations

The display comes preloaded and activated with GreenStar Basics Software which includes:

- Guidance
  - Parallel Tracking
- Documentation
  - Harvest Doc
  - Map Based Prescriptions
  - Field Doc including (Field Doc Sprayer, Field Doc Planter, Field Doc Air Cart, and Field Doc Connect)

Software activations are required to operate AutoTrac and can be purchased from you local John Deere Dealer.

Items REQUIRED to Activate AutoTrac

1. Display Serial Number (Found in display)
2. Display Challenge Code (Found in display)
3. Comar order number (from dealer once order is placed)
4. Visit StellarSupport.Deere.com to obtain a 26-digit activation code.

Current Purchased Software Activation options are as follows:

- SF1 AutoTrac — +/- 33 cm (+/- 13 in.) at receiver
- SF2 AutoTrac — +/- 10 cm (+/- 4 in.) at receiver
- SF1 to SF2 AutoTrac upgrade
- Pivot Pro (AutoTrac Circle operation for center pivots, requires an AutoTrac activation first)
- Swath Control

The display software activations (Pro-Modules) are 26-digit pin numbers that are separate from the StarFire 24-digit GPS activation number. The display software is only activated once for the life of the display and requires no other fees.

CZ76372,0000299 -19-28APR11-1/1

Obtaining Activation Code & Activating Software In Display

NOTE: The display Serial Number and Challenge Code are found at MENU button > GREENSTAR 3 PRO button > GS3 button > ACTIVATIONS tab

Get the 6-digit Comar order number from your dealer for the GS3 Pro package you have purchased (AutoTrac, PivotPro, Swath Control).

Get the serial number and challenge code from the display.

Go to www.StellarSupport.com and select ACTIVATIONS AND SUBSCRIPTIONS.

Select GREENSTAR 3 > ACTIVATE AUTOTRAC, then follow the GreenStar 3 Software Activation prompts to obtain the 26-digit code.

On the display, go to: MENU > GREENSTAR 3 PRO button > GREENSTAR 3 PRO button > ACTIVATIONS tab

Input the activation code.

Display shows as Activated in the Pro Module area.

The Display Software Activation Process is completed. Keep in mind if you have purchased SF2 level AutoTrac, you are required to also activate the StarFire receiver to an SF2 level. The StarFire is a separate 24-digit activation for SF2 and RTK.

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC12686 —UN—14JUL10



GREENSTAR 3 PRO button

CZ76372,000029A -19-28APR11-1/1

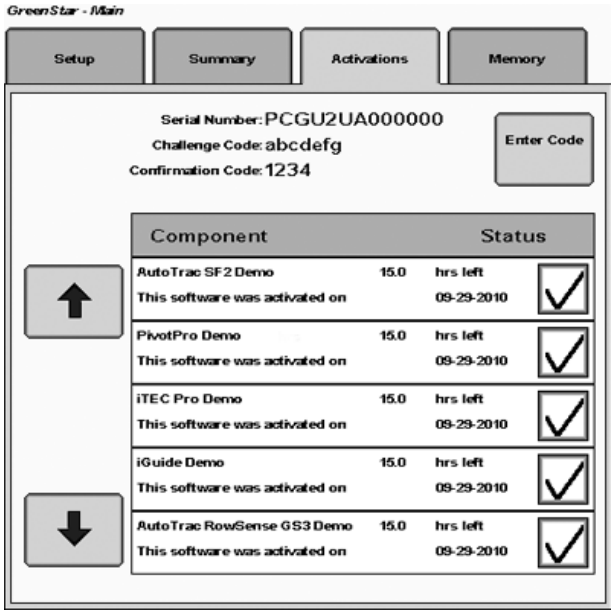
Managing Activations

The buttons and functions corresponding to each GreenStar Pro Module activation may be shown or hidden by checking the ON / OFF checkbox for each activation. The box must be checked to use the corresponding Pro Module. By turning OFF activations that are not being used, the corresponding buttons and functions will be hidden, making the display simpler to navigate.

Demo Activations are available to try out each Pro Module for 15 hours of use. The AutoTrac Demo is turned on by default. To try another Demo, such as Swath Control, turn it on and the Swath Control buttons and functions will show up on the display if an implement controller capable of that Pro Module is connected.

Go to GreenStar Main >> Settings >> Activations

IMPORTANT: Turning a Demo Activation OFF will not stop the activation time from counting down if the corresponding function has been setup and started. It will simply hide the corresponding buttons.

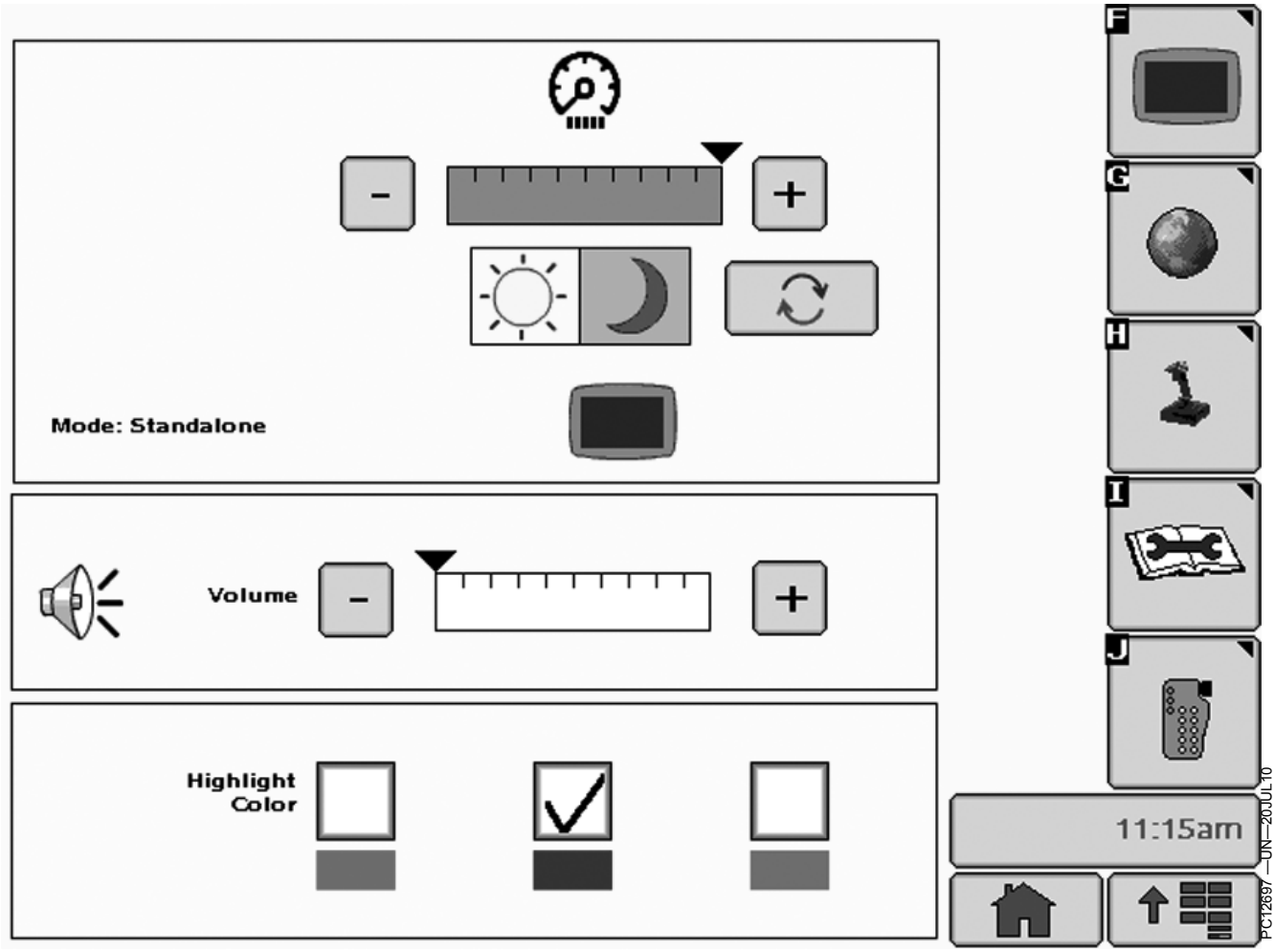


PC12929 —UN—29SEP10

GreenStar - Activations

CZ76372,00002F8 -19-28APR11-1/1

DISPLAY softkey



Display - Main

When display is initially installed in a vehicle, it will have a default setting for all features. Operators have the ability to change these settings to fit their needs. Once these settings are changed, they will be saved and retained through each power cycle.

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CZ76372,0000059 -19-20JUL10-1/6

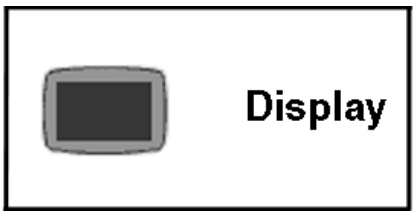
Go to MENU >> DISPLAY button >> DISPLAY softkey

PC8663 —UN—05AUG05



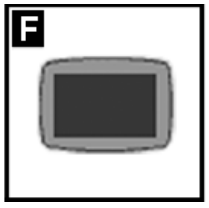
MENU button

PC11392 —UN—14OCT08



DISPLAY button

PC11393 —UN—14OCT08



DISPLAY softkey

CZ76372,0000059 -19-20JUL10-2/6

BRIGHTNESS button can be changed by selecting PLUS or MINUS button.

PC11440 —UN—28OCT08



BRIGHTNESS button

CZ76372,0000059 -19-20JUL10-3/6

NOTE: Sync with Cab feature only functions on selected vehicles.

Sync with Cab check box, when activated, allows the GreenStar display to control the brightness of other displays within the vehicle cab. Deselecting the check box will allow only display lighting to change with no effect on other cab displays and lights. If deactivated,

PC8686 —UN—09AUG05



Sync With Cab Check box

the brightness controls will only influence the GreenStar display.

CZ76372,0000059 -19-20JUL10-4/6

Volume can be changed by selecting either + or - button.

PC11438 —UN—24OCT08



VOLUME button

Continued on next page

CZ76372,0000059 -19-20JUL10-5/6

NOTE: Highlight color is defaulted to red at initial power-up of display.

Highlight/Focus Color can be changed by selecting desired color (red, blue, green).

PC8686 —UN—09AUG05



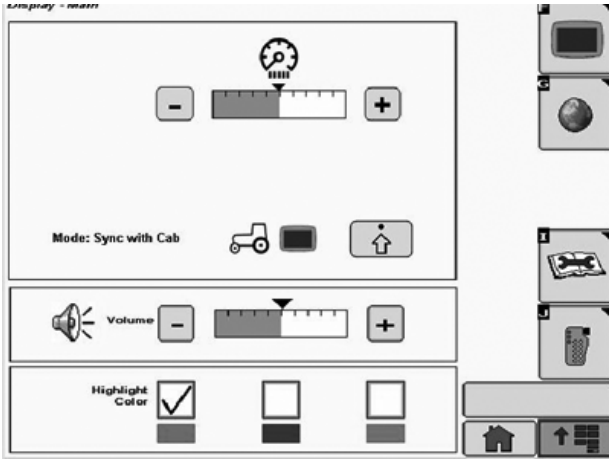
Highlight/Focus Color

CZ76372,0000059 -19-20JUL10-6/6

Display Brightness Control

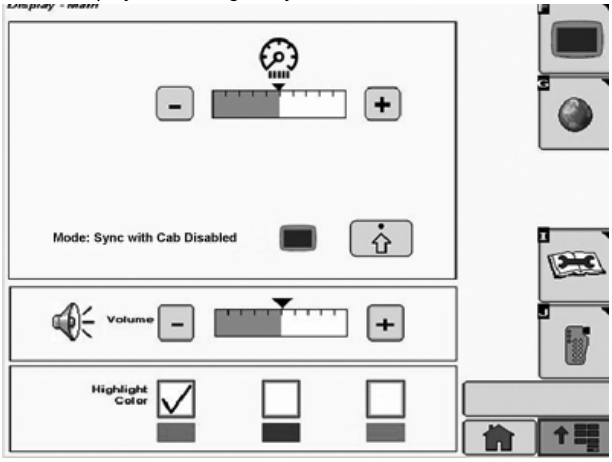
There are three modes that the display backlighting can be in. The Display - Main page layout will change slightly based on the display's mode.

- Standalone—Display backlight is controlled independently.
- Sync with Cab—Display backlight can be controlled in sync with the master backlight switch of a compatible vehicle system. In certain John Deere cabs, the display will also be capable of controlling the cab backlighting when adjustments are made.
- Sync with Cab disabled—It behaves like Standalone Mode but status description changes to reflect the Sync with Cab capabilities are available.



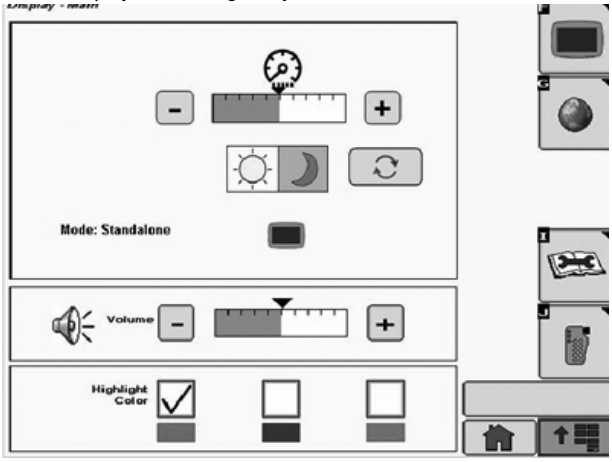
PC12698 —UN—20JUL10

Display - Main Page - Synchronization with Cab Enabled



PC12942 —UN—04OCT10

Display - Main Page - Synchronization with Cab Disabled



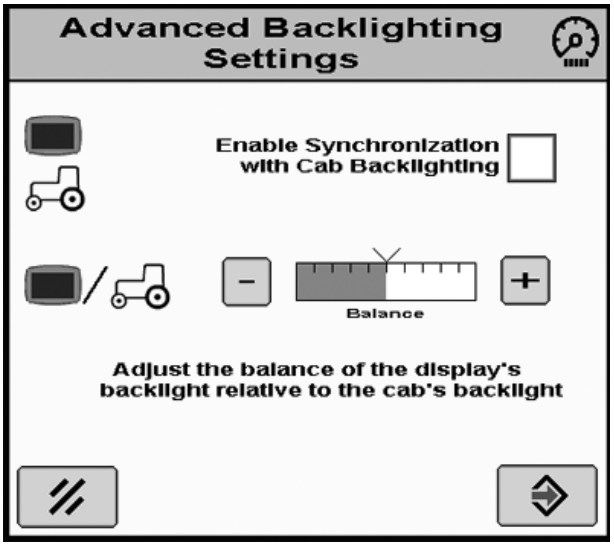
PC12700 —UN—20JUL10

Display - Main Page - Standalone Mode (No Network)

Continued on next page

CZ76372,00001B0 -19-04OCT10-1/2

The Advance Display Settings button, found on Display - Main page, will open the Advanced Backlighting Settings page. The Advanced Backlighting Settings page allows the operator to enable synchronization with cab backlighting using a check box. When backlight is synchronized with cab, the operator can adjust the balance between the cab's backlight and the display's backlight using the sliding scale.


Advanced Backlighting Settings
Enable Synchronization with Cab Backlighting
Balance
Adjust the balance of the display's backlight relative to the cab's backlight

PC10363 —UN—30SEP07

PC10364 —UN—30SEP07



Advanced Backlighting Settings Button

CZ76372,00001B0 -19-04OCT10-2/2

SETTINGS softkey

The Settings screen contains three tabs:

REGIONAL tab

Country, Language, Numeric Format and Units can be selected. Use drop-down boxes and select desired measurements to be displayed on screen.

IMPORTANT: If language file does not load properly when changing the language, reload software to USB drive and update display.

TIME AND DATE tab

NOTE: If vehicle loses battery power or if display is disconnected from vehicle Time and Date Settings will have to be reset.

Date and time can be changed, as well as time format. GPS Sync can be selected to automatically set the time using the time data coming from GPS receiver. When this is selected, user should choose proper time offset, which adjusted the GPS time data to correspond to your time zone, to ensure correct local time. Time Sync will not occur until GPS signal is acquired.

UNITS OF MEASURE tab

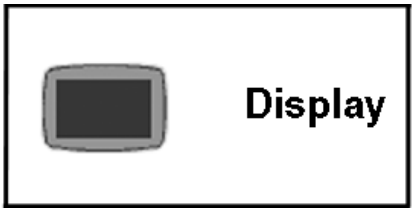
Users can customize units for a mix of metric and imperial units.

PC8663 —UN—05AUG05



MENU button

PC11392 —UN—14OCT08



DISPLAY button

PC8690 —UN—09AUG05



SETTINGS softkey

CZ76372,00001BA -19-04OCT10-1/1

DIAGNOSTICS softkey

The Diagnostics screen contains three tabs:

- READINGS tab
- TESTS tab
- ABOUT tab

READINGS tab

This tab will display operating voltages, part numbers, and hours of operation.

TESTS tab

This tab will allow the user to perform 3 different screen calibrations—Color Test, Touchscreen Test, Touchscreen Calibration.

The main function under the tests tab will be Touchscreen calibration. Touchscreen calibration will be required when the screen icon does not align with the area depressed. This may be caused by normal wear and tear, age, certain weather conditions, and contaminants on the screen (chemicals, solvents, etc.).

Touchscreen Calibration:

1. Under the Touchscreen Calibration button a new screen will appear with an X in the upper right corner.
2. Press the screen at the X and continue to follow the X's around the screen. Always press the screen directly at the center of the X.

Reset Touchscreen calibration will abort any saved calibrations and allow the user to start over and perform a new calibration.

Color Test:

Under the Test button, select the color test. The color test will display 3 distinct colors on the display for approximately 5 seconds. If you do not see 3 distinct colors, contact your John Deere Dealer for service.

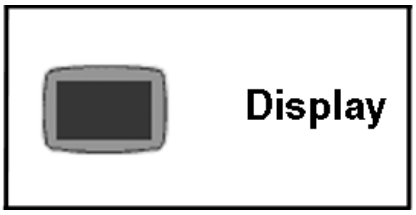
Touchscreen Test:

PC8663 —UN—05AUG05



MENU button

PC11392 —UN—14OCT08



DISPLAY button

PC8683 —UN—05AUG05



DIAGNOSTICS softkey

Under the Test button, select the Touchscreen Test. This test will allow the user to identify a pixel problem on the screen.

1. As you touch the screen, a sighting target will show up on the area touched.
2. Continue to touch the screen around the area of suspected pixel malfunction and see if the sighting target appears.

If sighting target does not appear, contact your John Deere Dealer.

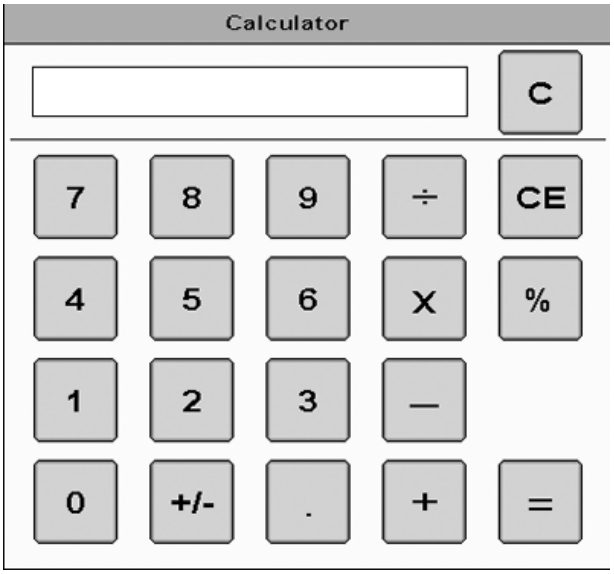
ABOUT tab

This tab is basic display background information.

OUO6050,00022AE -19-25NOV08-1/1

Calculator

The display has a standard calculator that can perform addition, subtraction, multiplication, and division. Select Menu > Calculator.



Calculator

CZ76372,00002D2 -19-15APR11-1/1

Layout Manager

The Layout Manager provides the operator the ability to display user-defined screens in the home page layout. Once these screens are configured, the display will return to the configuration anytime the Home softkey is pressed.

NOTE: Original GreenStar Monitor Mode is only available in layout manager option A and F. Advanced Performance Monitor or ISOBUS is only available in layout manager option A.

PC9033 —UN—17APR06



Home softkey

CZ76372,0000160 -19-29SEP10-1/5

Select Menu then select Softkey J which is the Layout Manager Option.

PC8663 —UN—05AUG05



MENU button

PC12869 —UN—16SEP10

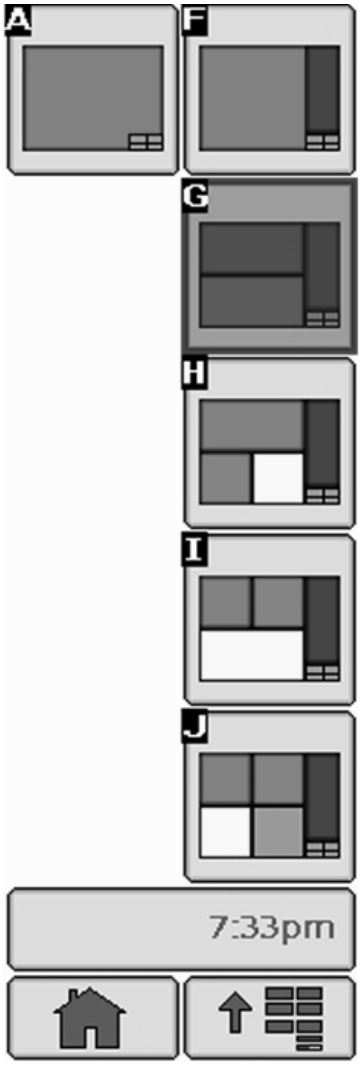


LAYOUT MANAGER button

Continued on next page

CZ76372,0000160 -19-29SEP10-2/5

Press softkey A, then press the large red area in main screen, this will bring you to the selection of programs to operate in that defined red area. You will see that Layout Manager A and F will have the largest selection of choices and layouts available. If you select GreenStar 3 Pro, you will then be taken to the confirmation screen seen below.



PC8870 —UN—17NOV05

Continued on next page

CZ76372,0000160 -19-29SEP10-3/5

If you are satisfied with the selection, press the ENTER button. If the selection is not what was intended, press the large block area again or press the CANCEL button to start over.

PC8649 —UN—01NOV05



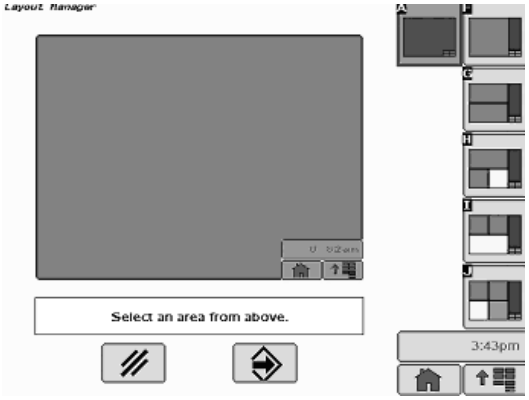
ENTER button

PC8582 —UN—01NOV05



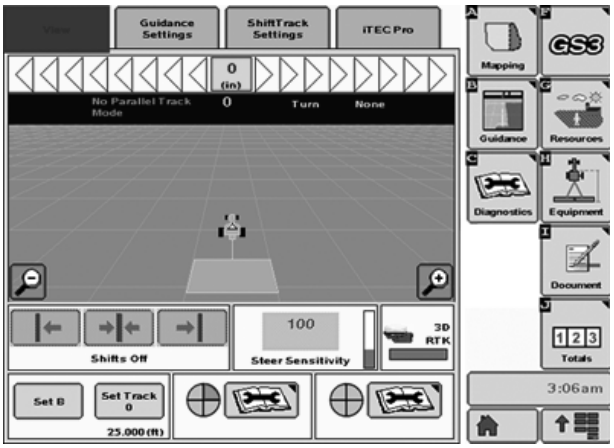
CLEAR button

Layout Manager Options with Example Layouts



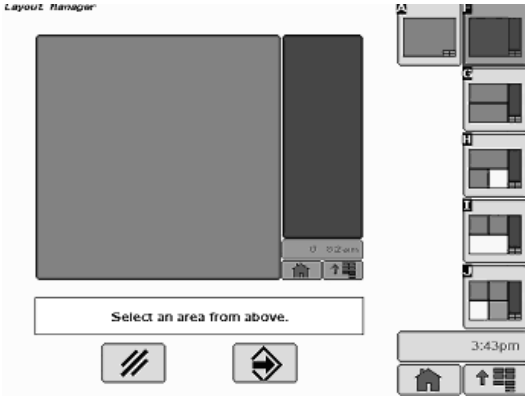
PC9034 —UN—17APR06

Layout Manager Option A



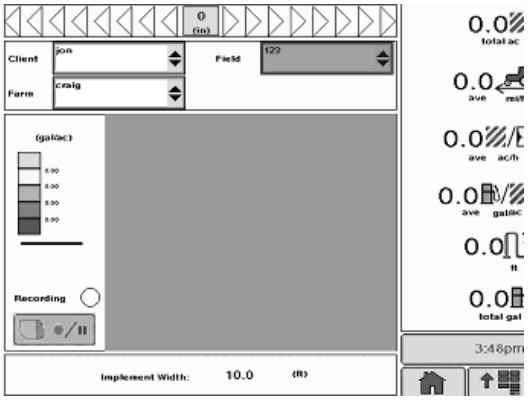
PC12852 —UN—31AUG10

Example of Layout Option A



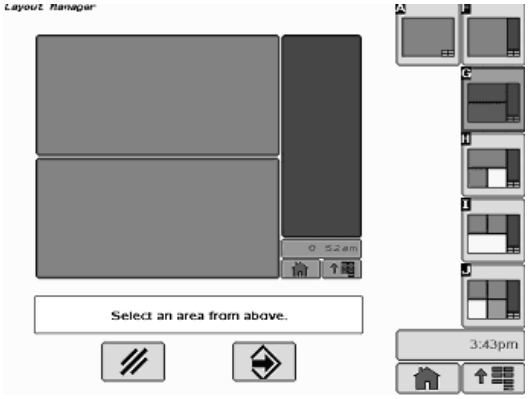
PC9036 —UN—17APR06

Layout Manager Option F



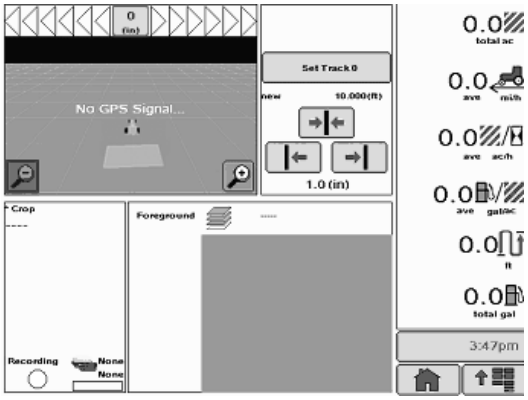
PC9037 —UN—17APR06

Example of Layout Option F



PC9038 —UN—17APR06

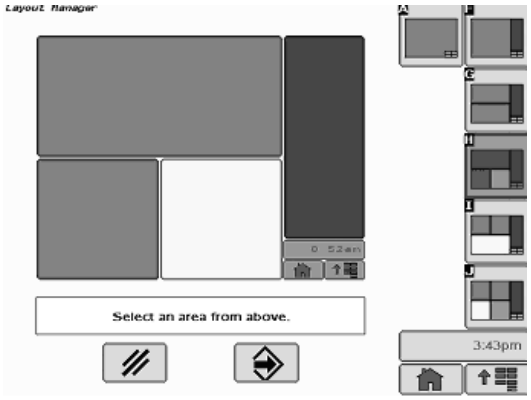
Layout Manager Option G



PC11396 —UN—14OCT08

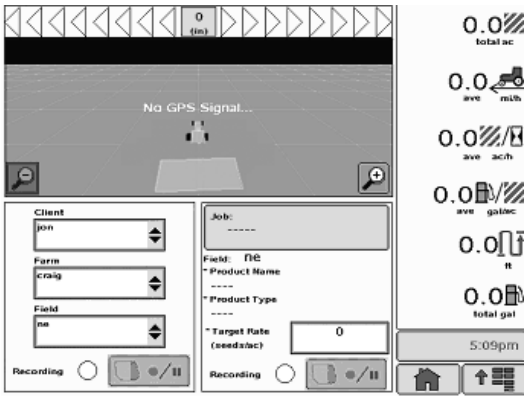
Example of Layout Option G

Continued on next page



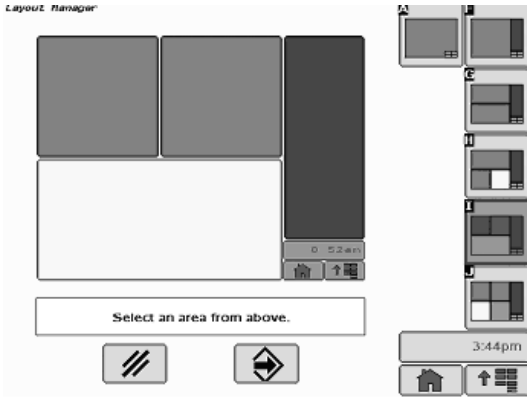
PC9040 —UN—17APR06

Layout Manager Option H



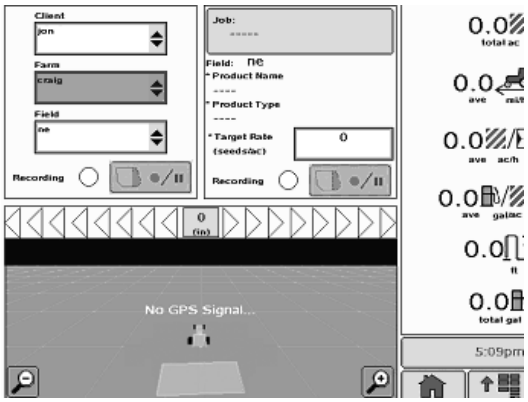
PC11397 —UN—14OCT08

Example of Layout Option H



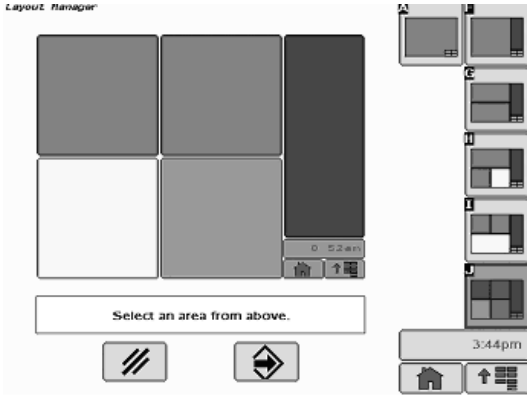
PC9042 —UN—17APR06

Layout Manager Option I



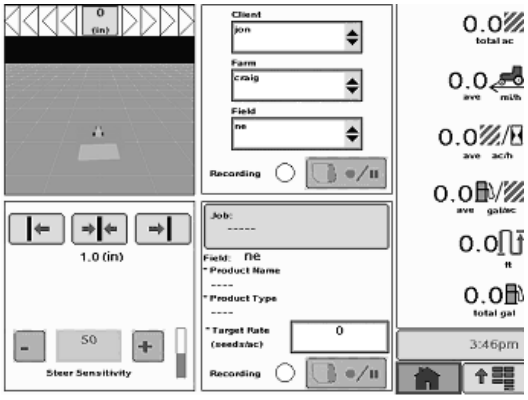
PC11398 —UN—14OCT08

Example of Layout Option I



PC9044 —UN—17APR06

Layout Manager Option J



PC11399 —UN—14OCT08

Example of Layout Option J

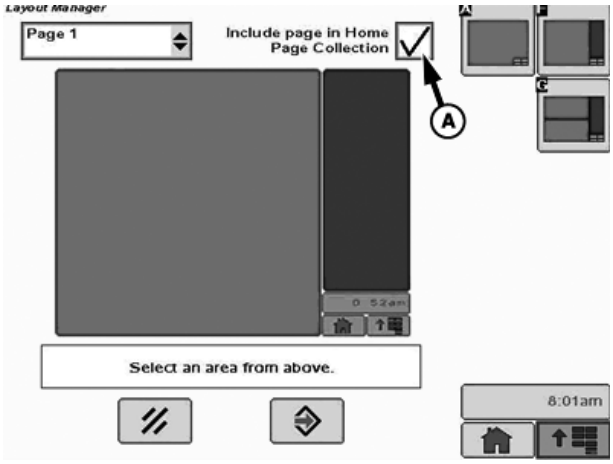
IMPORTANT: When setting up the display with vehicle key in the accessory position (power on, engine off), turn key to OFF position for 20 seconds BEFORE starting the vehicle. This will ensure the setup data is saved to the internal memory prior to operating.

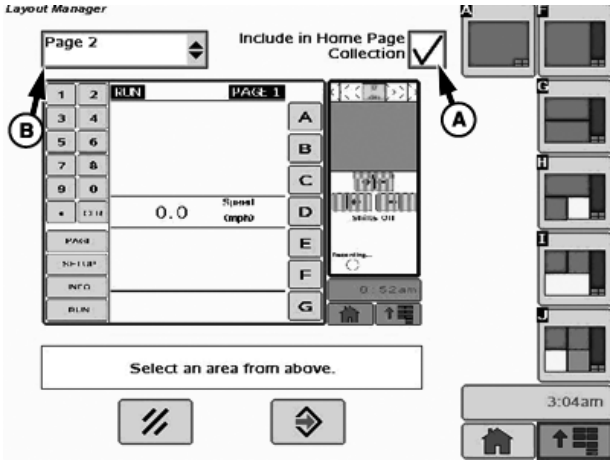
If the vehicle is running during setup and programming, turn the vehicle off with key in the OFF position and wait 30 seconds before restarting. This ensures that all data is saved to the internal memory.

DO NOT turn the key to the start position directly from the accessory position. The reduction in voltage during the starting phase could result in a loss of all setup data.

CZ76372,0000160 -19-29SEP10-5/5

Configure Multiple RUN pages





A—Include page in Home Page Collection checkbox **B—Page Number list box**

Multiple RUN pages allow the user to monitor the status of multiple applications in an easy way without navigating through several pages. The operator can configure five RUN pages on the HOME page.

To set up Multiple RUN pages:

1. In Layout Manager, select page number using the list box (B).
2. Configured the page with the applications to be displayed.
3. Put check in “Include page in Home Page Collection” checkbox

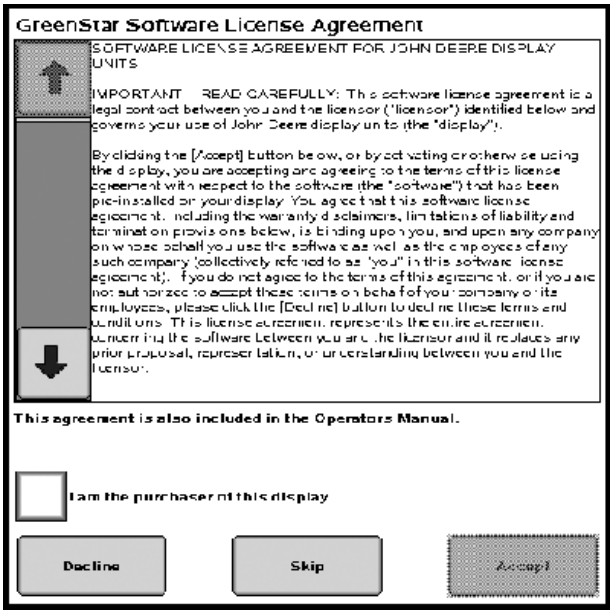
To view Multiple RUN pages click the HOME button on the menu bar of the display. Each time the HOME button is clicked the screen will advance to the next RUN page. When the last RUN page is being displayed on the screen, clicking the HOME button will bring up the first RUN page.

OUO6050,0000E57 -19-31OCT07-1/1

License Agreement

The first time you access the GreenStar tab on the display menu a license agreement will appear. If you are the purchaser of the display, read the agreement fully, check the box next to “I am the purchaser of this display”, and Accept agreement if you agree to the terms.

The License Agreement can be obtained from your local John Deere dealer or can be viewed at www.StellarSupport.com.


GreenStar Software License Agreement
SOFTWARE LICENSE AGREEMENT FOR JOHN DEERE DISPLAY UNITS
IMPORTANT READ CAREFULLY: This software license agreement is a legal contract between you and the licensor ("licensor") identified below and governs your use of John Deere display units (the "display").
By clicking the [Accept] button below, or by activating or otherwise using the display, you are accepting and agreeing to the terms of this license agreement with respect to the software (the "software") that has been pre-installed on your display. You agree that this software license agreement, including the warranty disclaimers, limitations of liability and termination provisions below, is binding upon you, and upon any company on whose behalf you use the software as well as the employees of any such company (collectively referred to as "you") in this software license agreement). If you do not agree to the terms of this agreement, or if you are not authorized to accept these terms on behalf of your company or its employees, please click the [Decline] button to decline these terms and conditions. This license agreement represents the entire agreement concerning the software between you and the licensor and it replaces any prior proposal, representation, or understanding between you and the licensor.
This agreement is also included in the Operators Manual.
I am the purchaser of this display
Decline
Skip
Accept

PC10857JD —UN—12APR09

License Agreement

OUO6050,00011FC -19-19APR11-1/1

GREENSTAR 3 PRO button

The GREENSTAR 3 PRO - MAIN screen contains four tabs:

SETUP tab

Simplifies initial setup and configuration of GS3 applications.

Summary tab

Shows operational summaries.

ACTIVATIONS tab

View available software and enter code to activate.

MEMORY tab

Bar graph shows amount of memory used.

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC12686 —UN—14JUL10



GREENSTAR 3 PRO button

CZ76372,0000138 -19-29SEP10-1/1

Setup Wizard

The Setup Tab is intended to simplify initial setup and configuration of the GS3 applications while also helping the operator become familiar with where the setup and configuration settings are located and which settings are required for full functionality. After using the Advanced Setup feature, the operator can start and run their desired operation and also know where to go to change settings.

The Advanced Setup feature can also be used to change individual settings as the operator progresses through their day-to-day operations.

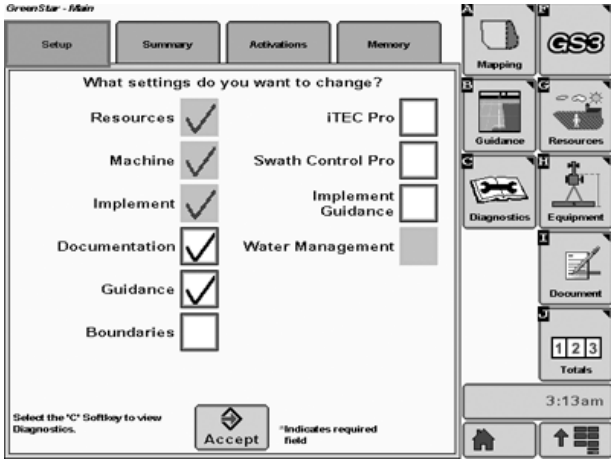
While using Advanced Setup, select which functionality to configure.

- Resources
- Machine
- Implement
- Documentation
- Guidance
- Boundaries
- iTEC Pro
- Swath Control
- Implement Guidance

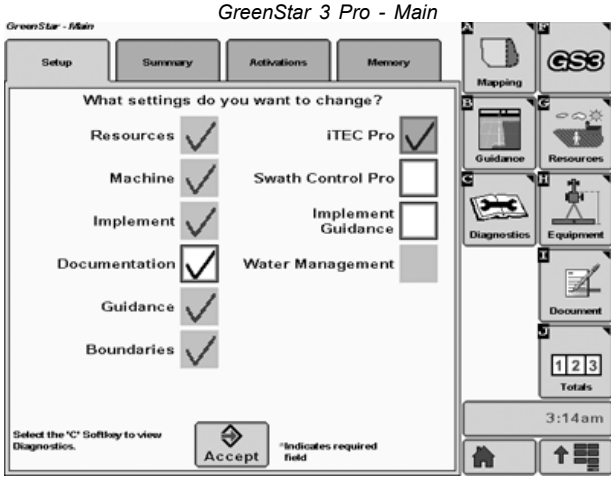
Select any combination of functions to configure. If a function is dependent on other functions, the system automatically selects the required functions. The operator is not able to deselect those functions. If the operator selected the Boundaries function, the Resources function would be automatically selected to force the operator to select a Client, Farm, and Field.

The functions that the operator selects determine which pages are included in Advanced Setup. Only screens associated with functions selected are included.

For each function, there is a list of required fields that must be complete and valid before the system works. Red asterisks indicate required fields. Based on the functions the operator has selected for setup, the GS3 applications determine which fields are required for successful setup. Those fields are visually indicated to the operator. Progressing through Advanced Setup without completing the required fields causes the system not to function correctly.



GreenStar 3 Pro - Main



GreenStar 3 Pro - Main

CZ76372,0000139 -19-28APR11-1/1

EQUIPMENT softkey

The equipment screen is used to record data by machine to document total area and hours. Equipment settings are also used for inputs on implement size, GPS receiver location, etc. Track spacing is used for machine guidance and coverage maps.

The GREENSTAR 3 PRO - EQUIPMENT screen can contain up to four tabs:

MACHINE tab

IMPLEMENT 1 tab

IMPLEMENT 2 tab (optional)

IMPLEMENT 3 tab (optional)

PC8663 —UN—05AUG05



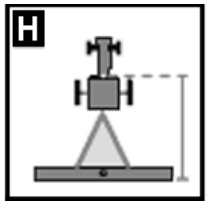
MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8677 —UN—05AUG05



EQUIPMENT softkey

CZ76372,0000063 -19-15JUL10-1/1

MACHINE and IMPLEMENT tabs

MACHINE tab allows setup of the following:

- Machine Type—Used to select machine type.
- Machine Model—Used to distinguish between different models.
- Machine Name—Used to distinguish between multiple machines of the same model.
- Connection Type—Drawbar or 3 pt. hitch.
- Machine Turn Radius
- Turning Sensitivity
- Recording Source—Used to determine when recording turns on-off.
- Machine Offset—Used to eliminate skips or overlaps due to an offset receiver.

NOTE: Not all recording sources are available for all machines. Many recording sources require ground speed.

Recording Source

NOTE: If Manual Mode is selected, the operator must push the Record or Pause Button to turn recording on or off for Documentation and Coverage Maps.

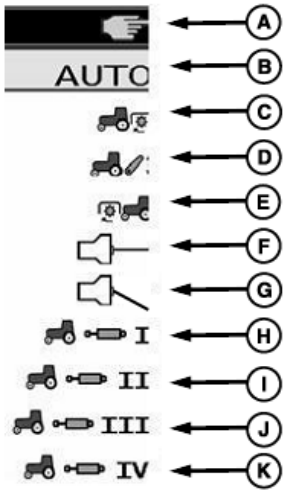
The following control units can be used with AUTO to turn recording on and off automatically :

- John Deere Harvest Monitor
- John Deere SeedStar™ for Air Carts
- John Deere SeedStar Gen 2 Monitor or Variable Rate Drive for Planters
- John Deere SprayStar™ Gen 4
- John Deere Central Insecticide System
- Raven™ 440, 450, 460, 660
- SideKick
- GreenSeeker™
- Rawson™ Accu-Rate™ and Accu-Plant™
- New Leader™ Mark III Mark IV
- Dickey-John™ Seed Manager
- Vanguard™ PIC Seed Monitor
- Task Control Unit compliant implements

NOTE: Dual Variety Function cannot be used with a three motor VRD planter

NOTE: PTO, Hitch, and SCV can be used as a recording source on certain vehicles only.

SeedStar is a trademark of Deere & Company
SprayStar is a trademark of Deere & Company
Raven is a trademark of Raven
GreenSeeker is a trademark of NTech Industries, Inc.
Rawson is a trademark of Rawson
Accu-Rate is a trademark of Rawson
Accu-Plant is a trademark of Rawson
New Leader is a trademark of New Leader
Dickey-John is a trademark of Dickey-John
Vanguard is a trademark of Vanguard



PC8770 —UN—11OCT05

Recording Source

A—Manual Recording On/Off
B—Automatic (from controller)
C—Rear PTO
D—3-point Hitch
E—Front PTO
F—Implement Switch Open
G—Implement Switch Closed
H—SCV 1
I— SCV 2
J— SCV 3
K—SCV 4

IMPLEMENT tabs allow setup of the following:

- Implement Type—Used to select machine type.
- Implement Model—Used to distinguish between different models.
- Implement Name—Used to distinguish between multiple machines of the same model.
- Implement Offsets—Used to eliminate skips or overlaps due to an off-center or drafting implement.
- Implement Widths

For more information, see MACHINE AND IMPLEMENT SETUP section.

CZ76372,00002A0 -19-30MAR11-1/1

Machine Setup

MENU >> GREENSTAR 3 PRO >> EQUIPMENT allows access to MACHINE and IMPLEMENT setup screens.

PC8663 —UN—05AUG05



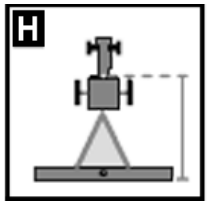
MENU Softkey

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8677 —UN—05AUG05

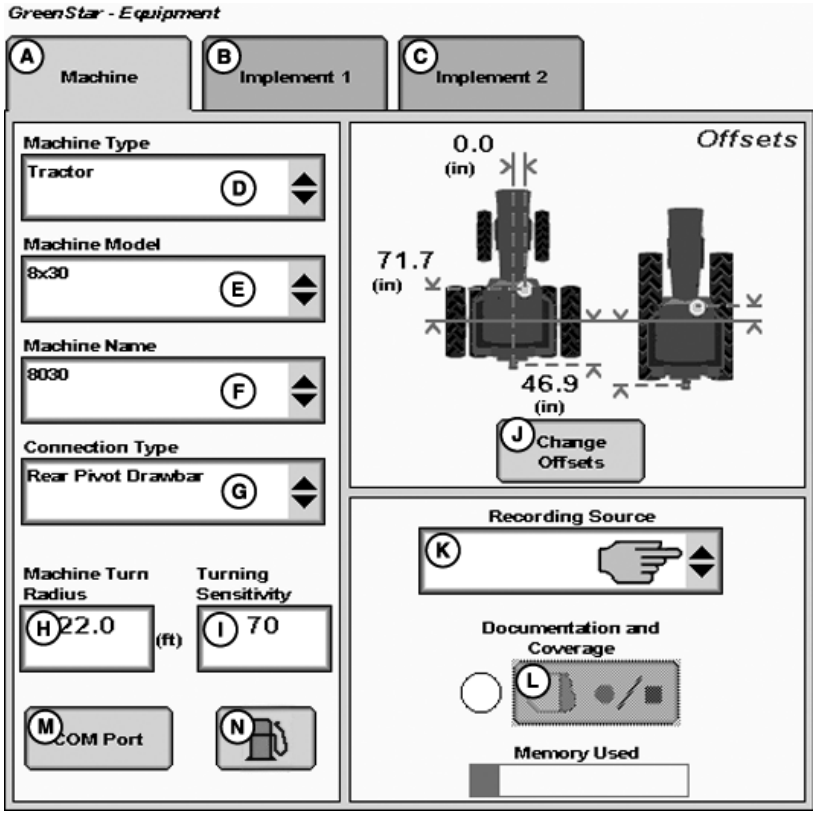


EQUIPMENT Softkey

Continued on next page

CZ76372,000013B -19-14JUN11-1/4

Machine Tab



PC13268 —UN—28APR11

Machine Tab

A—Machine Tab
B—Implement 1 Tab
C—Implement 2 Tab
D—Machine Type Drop-Down Menu
E—Machine Model Drop-Down Menu
F—Machine Name Drop-Down Menu
G—Connection Type Drop-Down Menu
H—Machine Turn Radius Input-Box
I— Turning Sensitivity Input-Box
J— Change Offsets Button
K—Recording Source Drop-Down Menu
L— Record/Pause Button
M—COM Port Button
N—Fuel Button (Business Pack/Europe Only)

NOTE: All items and changes will be saved under the current machine name.

NOTE: Offsets are provided by some ISO implements and some Deere tractors. Some list boxes may be grayed out when the machine is automatically recognized.

The Machine and Implement tabs are required to be populated with equipment information such as:

- Type
- Model
- Name
- Offsets

Machine Type—Vehicle type being used (e.g. Tractor, Combine, Sprayer).

Machine Model—Model number of the vehicle being used. For John Deere vehicles, model numbers will be available from the drop down list.

Machine Name—The name is used to further clarify which machine is being used. For instance, if there are two 8430's in your operation, the machine names may be "John" and "Deere", or "8430-1" and "8430-2", or simply "1" and "2". However, settings pertaining to the tractor such as turning radius, turn sensitivity, dimensions, etc. are stored to the name.

Continued on next page

NOTE: Machine Turn Radius and Turning Sensitivity are for use with iTEC Pro only.

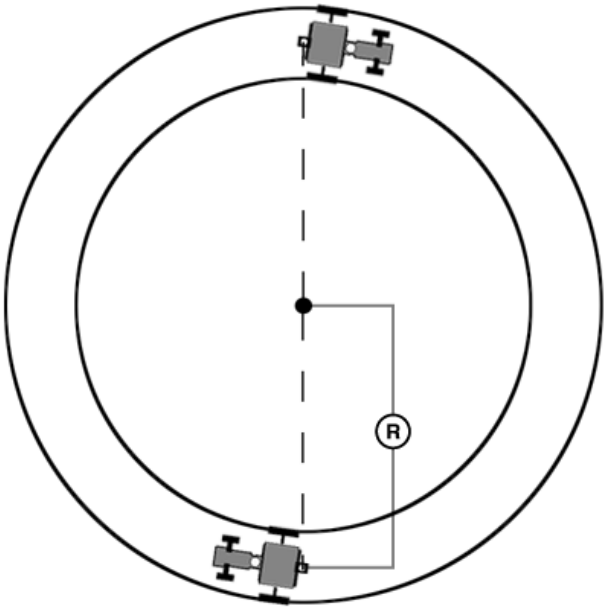
Machine Turn Radius—How sharp the machine can turn without an implement attached and without applying brake pressure. The turn radius is half the diameter as measured at the center of the rear axle of a row crop tractor, and the pivot point on tracks and 4WD tractors. Example: 8030 wheel tractors have a minimum turn radius of 6.1—6.7 m (20—22 ft). Choose a number to start with and change as needed for accuracy.

Turning Sensitivity—AutoTrac gain setting when the vehicle is in an automated turn. This is adjustable by the operator to improve performance (default 70).

Verify proper dimensions correspond to the Machine selected.

NOTE: Not all recording sources are available for all machines.

R—Machine Turn Radius



Machine Turn Radius

CZ76372,000013B -19-14JUN11-3/4

Machine Offsets

Press CHANGE OFFSETS button on Machine Setup screen.

Offsets are used to eliminate skips or overlaps due to an offset receiver.

To enter machine offsets:

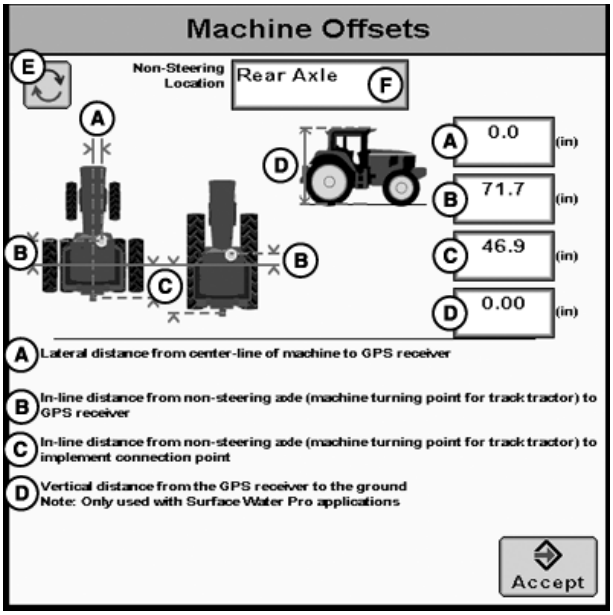
- Select input box.
- Enter amount of offset in cm/in. using numeric keypad and select enter button.
- Select the receiver toggle button to move the offset to the right or left of cab center.

If no receiver offset is required, then RECEIVER OFFSET input box should read 0.

Machine offsets:

- A) Lateral Distance from center-line of machine to GPS receiver.
- B) In-line distance from non-steering axle to GPS Receiver.
- C) In-line distance from non-steering axle to connection point. The connection point is where the tractor connects to the implement (drawbar, hitch) except on 2 pt pivoting implements (large planter). In this case, measure the distance back to the pivot point immediately behind the hitch.
- (D) Vertical distance from GPS receiver to the ground.

NOTE: Offset (D) is for use with Surface Water Pro.


Machine Offsets
E
Non-Steering Location
Rear Axle
F
A
D
A 0.0 (in)
B 71.7 (in)
C 46.9 (in)
D 0.00 (in)
B
C
B
A Lateral distance from center-line of machine to GPS receiver
B In-line distance from non-steering axle (machine turning point for track tractor) to GPS receiver
C In-line distance from non-steering axle (machine turning point for track tractor) to implement connection point
D Vertical distance from the GPS receiver to the ground
Note: Only used with Surface Water Pro applications
Accept
PC13269 —UN—28APR11

Machine Offsets

A—Lateral distance from center-line of machine to GPS receiver
B—In-line distance from non-steering axle to GPS receiver
C—In-line distance from non-steering axle to connection point
D—Vertical distance from GPS receiver to the ground
E—Offset Toggle Button
F—Non-Steering Axle Location Drop-Down Menu

CZ76372,000013B -19-14JUN11-4/4

Implement Setup

Implement 1 Tab

MENU > GREENSTAR 3 PRO > EQUIPMENT > IMPLEMENT tab

PC8663 —UN—05AUG05



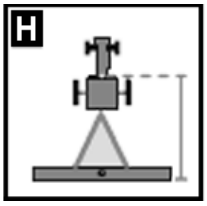
MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

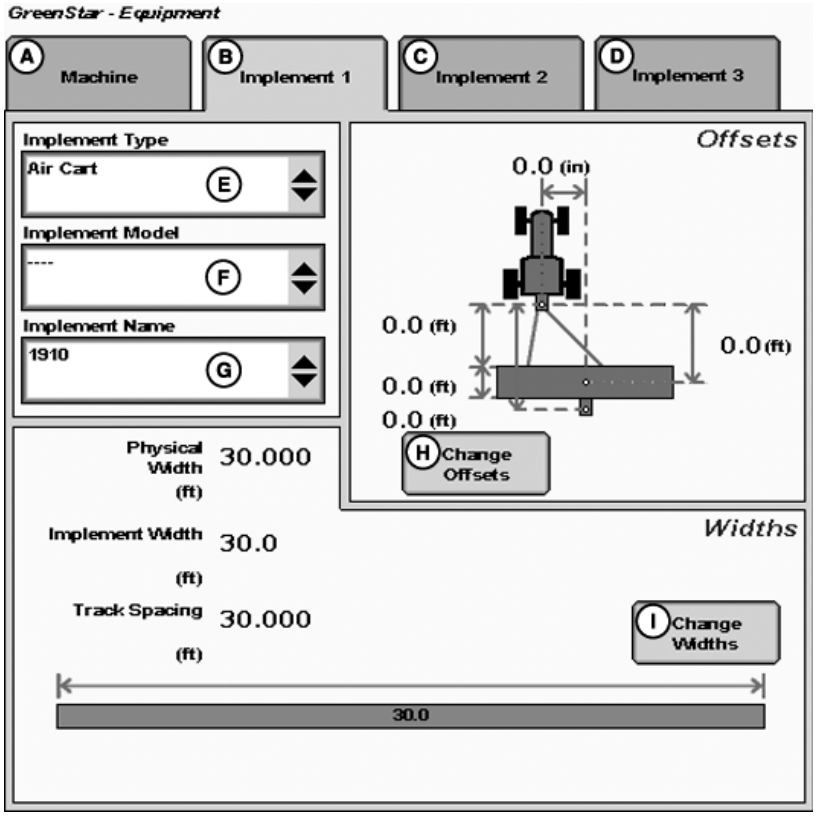
PC8677 —UN—05AUG05



EQUIPMENT button

Continued on next page

CF86321,000001F -19-12APR11-1/6



PC12931 —UN—30SEP10

Implement Tab

A—Machine Tab
B—Implement 1 Tab
C—Implement 2 Tab
D—Implement 3 Tab
E—Implement Type Drop-Down Menu
F—Implement Model Drop-Down Menu
G—Implement Name Drop-Down Menu
H—Change Offsets Button
I— Change Widths Buttons

Select the Change Offsets button (H).

NOTE: All items and changes will be saved under the current implement name.

NOTE: Offsets are provided by some ISO implements and some Deere tractors. Some list boxes may be grayed out when the implement is automatically recognized.

Verify/Enter implement: Type, Model, and Name in drop-down menus.

Implement name allows user to save implement dimensions.

Continued on next page

CF86321,000001F -19-12APR11-2/6

Implement Offsets—Used to define the actual implement position relative to the tractor. This is important for ensuring the implement is lined up to the field at the end of turns and in determining where the implement is for the Minimize Skips and Minimize Overlaps feature (see Change Settings on Machine tab).

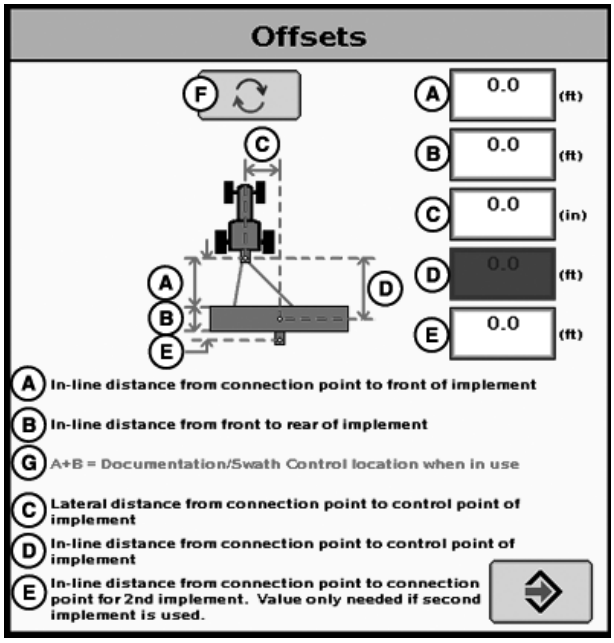
- A) In-line distance from connection point to front of implement. On pull-type implements, think of this as the tongue. For more precision, it is actually the dimension from the pinbolt to the front side of where the work gets done (front ranks of field cultivator, seed drop point on a planter). For planters with a 2 pt. mount, measure from where the planter pivots just behind the 2 pt.
- B) Working Length of the implement. On ground engagement tools, this is the distance from the front rank of sweeps or points to the rear rank. On a standard planter or pull type sprayer, this dimension would be 0 - the seed is dropped at the same point on every row, and the sprayer has nozzles at the same point along the boom. Dimension (A) would then need to extend to the location of the seed drop point or sprayer boom. On a spreader, (A+B) is the drop point of the product. Refer to manufacturer's implement OM for this value.
- C) Lateral distance from connection point to control point of implement. This is the lateral distance from the center of the tractor to the center of the implement, which will be 0.0 for most common implements. This dimension is used to alert the operator to potential collisions. This is critical for proper end-turn performance and may need to be adjusted.

  NOTE: Examples of equipment that will not be centered include mower conditioners and most split row planters with an even number of 38 cm (15 in.) rows, (e.g. 24R15 or 32R15) unless you have an adjustable hitch crossbar.

- D) In-line distance from connection point to control point of implement. In many cases, this distance will be from the connection point to the carrying wheels. For proper turns, measure this distance with implement at the height it typically will be at while turning.

  NOTE: These dimensions may need to be adjusted for fine-tuning performance in the field.

  NOTE: For 3 pt mounted implements, dimension (D) does not need to be entered.



PC11405 —UN—15OCT08

Implement Offsets

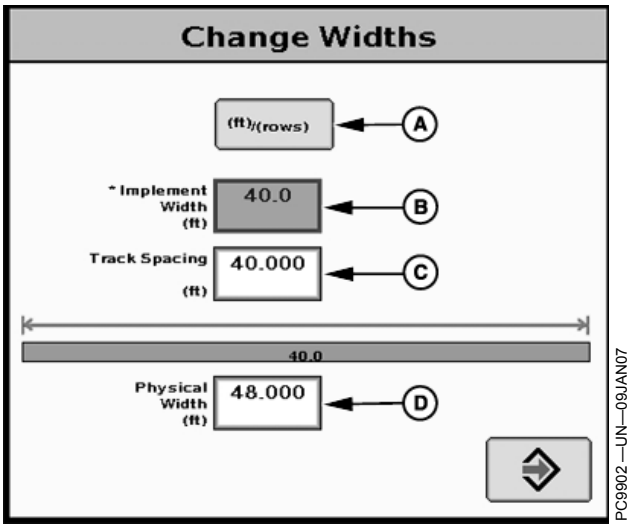
A—In-line distance from connection point to front of implement.
B—In-line distance from front to rear of implement.
C—Lateral distance from connection point to control point of implement.
D—In-line distance from connection point to control point of implement.
E—In-line distance from connection point to connection point for second implement. *Value only needed if second implement is used.*
F—Offset Toggle Button
G—A+B = Documentation / Swath Control location when in use.

Typical Planter Setup—JD 1770 16R30 NT planter with a 2 point connection
- A = 3.8 m (12.6 ft)
- B = 0 m (0 ft) - even though it is physically 2 m (6.8 ft)
- C = 0 m (0 feet)

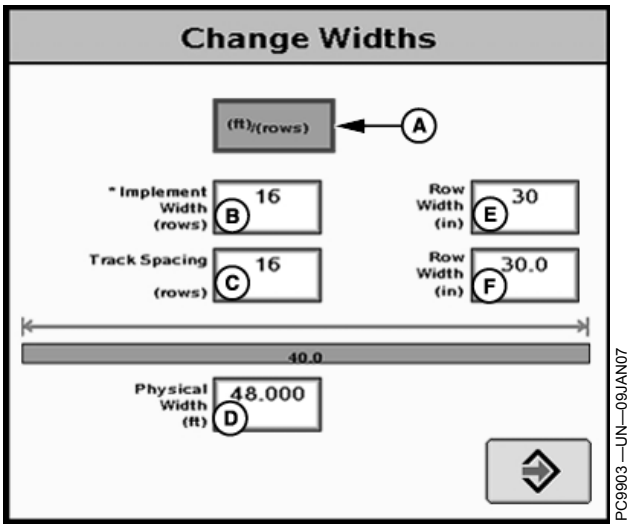
Typical Disk Setup—JD 637 F 10.8 m (35.5 ft) disk setup
- A = 3 m (9.9 ft)
- B = 5 m (16.4 ft)
- C = 0 m (0 ft)

Continued on next page

CF86321,000001F -19-12APR11-3/6



Track Spacing



Track Spacing

A—m (ft)/(rows) button
B—Implement Width
C—Track Spacing
D—Physical Width
E—Row Width

Implement Widths—Used to enter implement width and track spacing for guidance. This value is also used to calculate total area when documenting the operation. Verify implement type, model, name, implement width and track spacing when changing implements. Implement width and track spacing are independent of each other.

NOTE: IMPLEMENT tab will show HEADER for Combines, ROW UNITS for Cotton Pickers, and BOOM for Sprayer.

NOTE: Implement width may come from controller on select controllers such as SeedStar.

NOTE: In some cases, a higher degree of precision can be achieved for track spacing when track spacing is entered in by rows instead of feet. More decimal places are used in the track spacing calculation when entered in by rows versus the three decimal places allowed when entered by feet.

Defining Implement Width and Track Spacing. Implement width and track spacing can be defined two ways: enter the working width of the implement, or enter the number of rows and the row spacing. To toggle between these two, select the m (ft)/(rows) button.

- **Implement Width** m (ft)—enter total implement working width
- **Implement Width** rows—enter number of rows and the row spacing in inches

Track Spacing—Used in guidance for how far each pass is from the last pass. It is entered the same way as Implement Width. For “perfect” guess rows, this distance will be the same as Implement Width. To ensure some overlap for tillage or spraying, or to account for some GPS drift, you may choose to make the Track Spacing somewhat less than the Implement Width.

Physical Width—The actual width of the entire implement when being used in the field when the implement is raised. It is sometimes larger than Implement Width.

Using a planter as an example, the marker arms and blades are wider than the working width. This width needs to be entered if markers are not used, or are used and completely folded on the ends. If markers are only partially folded during turns, enter this larger dimension.

IMPORTANT: Width measurements are used to help alert an operator of potential intersections between the implement and an impassable boundary. The operator still needs to be aware of potential collisions if there are times the implement is wider than the dimension entered (e.g. marker arm lowered). If markers are used in the field, add the width of both markers to give ultimate alarms of possible intersections.

NOTE: As a buffer to avoid obstacles, additional Physical Width may be added to the implement to compensate for several things, one of these being GPS drift.

Signal	Approximate Physical Width added to Implement
RTK	0.6 m (2 ft)
SF2	0.9 m (3 ft)
SF1	3.4 m (11 ft)

Physical Width Table

Continued on next page

CF86321,000001F -19-12APR11-4/6

NOTE: If the physical width is less than the implement (working) width, a message will appear as a reminder that this is not usually correct (A 16R30 planter is physically wider than its 12.2 m (40 ft) working width). An example where the working width is wider than the physical width is a dry fertilizer spreader—it spreads much farther than the physical width of the buggy.

Confirm Configuration—The physical width is smaller than the implement width which may not allow detection of all intersections with impassable boundaries.


GS3
Confirm Configuration
The physical width is smaller than the implement width which may not allow detection of all intersections with impassable boundaries.
Accept

PC12865 —UN—16SEP10

Confirm Configuration

Continued on next page

CF86321,000001F -19-12APR11-5/6

Implement 2 and Implement 3 tab



IMPLEMENT 2 tab

A—MACHINE tab
B—IMPLEMENT 1 tab
C—IMPLEMENT 2 tab
D—IMPLEMENT 3 tab
E—IMPLEMENT TYPE drop-down box
F—IMPLEMENT MODEL drop-down box
G—IMPLEMENT NAME drop-down box

The IMPLEMENT 2 and IMPLEMENT 3 tabs are primarily used for logging hours against the equipment.

For IMPLEMENT 2 tab to appear, an implement type must be selected in IMPLEMENT 1 tab

IMPLEMENT 2 tab allows setup of following:

- Implement Type—Used to select implement type
- Implement Model—Used to distinguish between different models
- Implement Name—Used to distinguish multiple machines of the same model

NOTE: Implement widths or offsets cannot be defined for Implement 2 or 3.

For IMPLEMENT 3 tab to appear, implement type must be selected in IMPLEMENT 2 tab.

IMPLEMENT 3 tab allows setup of the following:

- Implement Type—Used to select implement type
- Implement Model—Used to distinguish between different models or multiple machines or the same model
- Implement Name—The name is used to further clarify which implement is being used.

NOTE: Implement widths or offsets cannot be defined for Implement 3.

CF86321,000001F -19-12APR11-6/6

Resource/Conditions Softkey

Settings in Resource/Conditions screen are used for guidance, documentation, and mapping and are saved to a USB drive and can be unloaded to John Deere desktop software.

NOTE: If Alerts occur indicating memory space is full, desktop software can be utilized to remove unused items.

The GREENSTAR 3 PRO - RESOURCES/CONDITIONS screen contains two tabs:

RESOURCES tab

- Client- Used to separate data from different clients, typically used by custom and commercial operators. Allows data to be unloaded for a specific client.
- Farm- Used to separate data from different farms and landowners.
- Field- Used to separate data from different fields within a farm.
- Task- Used to separate data from different field tasks like planting, spraying, and others. Set to 'Documentation Off' for operators who only use guidance and do not want to document field operation data.
- Operator- Used to separate data from different operators.
- License- Used to document applicator license for operator.
- Crop Season- Used to separate data from different crop seasons

CONDITIONS tab

- Temperature

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8676 —UN—05AUG05



Resource/Conditions softkey

- Wind Speed
- Wind Direction
- Sky Condition
- Humidity
- Crop Growth Stage
- Soil Moisture
- Soil Temperature

CZ76372,000018E -19-18APR11-1/1

Fields

Change Field Name

Client, Farm, and Field name can be selected manually or automatically. Several types of setup data are tied to Field Names including guidance lines, maps, and documentation data. If fields have external boundaries saved in the display, the field settings can be selected automatically and the operator will be alerted when the implement is completely out of the field.

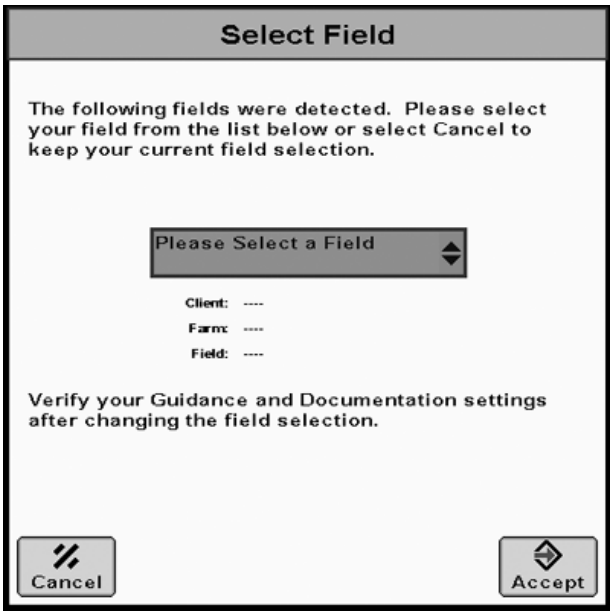
NOTE: Field Names can only be edited or deleted individually using Apex or another type of desktop software. To delete all data and setup info in the display, Backup data to a USB drive and select that option.

CZ76372,0000288 -19-12JAN11-1/1

Field Locator



PC12863 —UN—16SEP10


Select Field
The following fields were detected. Please select your field from the list below or select Cancel to keep your current field selection.
Please Select a Field
Client: ----
Farm: ----
Field: ----
Verify your Guidance and Documentation settings after changing the field selection.
Cancel
Accept

PC12864 —UN—16SEP10

With external boundaries setup and Field Locator On/Off box checked (found in the resources and conditions tab), when the implement leaves the current field, text appears on the map. When text appears, by pressing on the map “Select Field” window will appear. Within the drop down box, the fields within 100 feet of the implement will appear.

CZ76372,000016A -19-19APR11-1/1

Delete and Rename Client, Farm, and Field

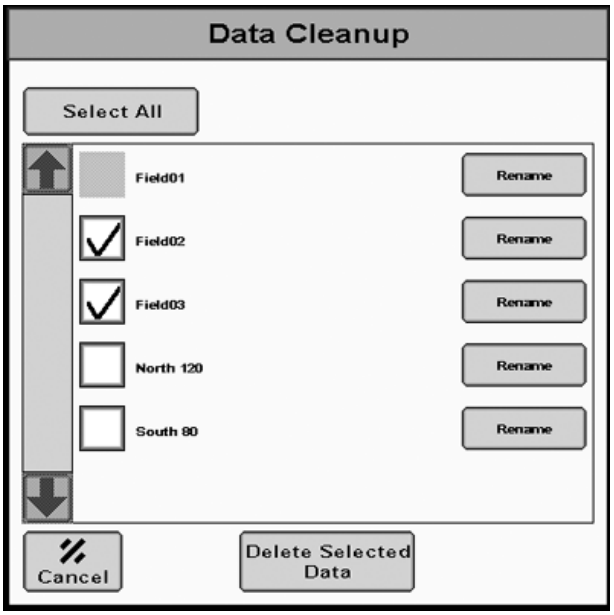
The Client, Farm, and Field drop down lists have the option to rename and delete entries. From the list, select <List Cleanup>.

To rename an entry, select the Rename button, and type the new name with the keyboard.

To delete entries, place checks next to the entries that need to be removed. Then select the Delete Selected Data button.

IMPORTANT: If a Client, Farm, or Field is renamed and then data is Exported to desktop software, duplicate entries will appear in the desktop software.

NOTE: Greyed out items can not be deleted because they may be related to other data or were created using desktop software.



PC13252 —UN—19APR11

Data Cleanup

BA31779,000016E -19-28APR11-1/1

Mapping Softkey

MENU > GreenStar 3 Pro > Mapping

The following functionality is accessed with the mapping softkey:

- On-screen Maps
- Boundaries
- Flags

Several map type choices are provided in Map Settings.

PC8663 —UN—05AUG05



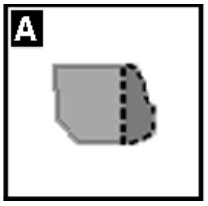
MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8672 —UN—05AUG05

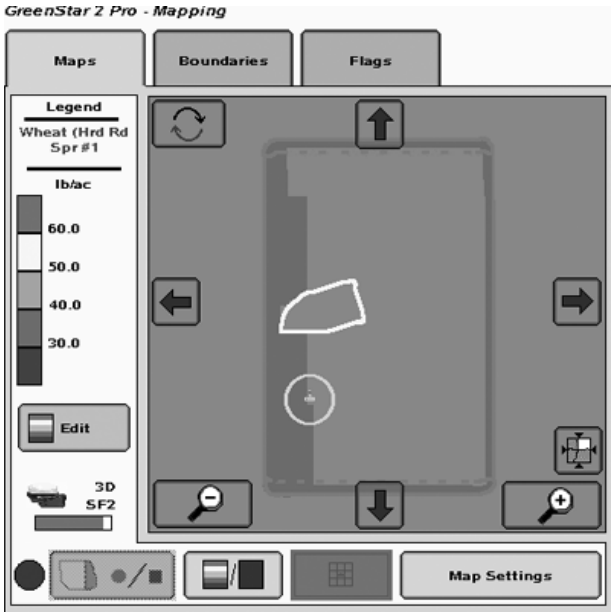


MAPPING softkey

CZ76372,0000064 -19-09JUL10-1/1

MAPS tab

View and setup on-screen maps by selecting the Maps tab.



PC10857RG —UN—01OCT09

CZ76372,000014E -19-28APR11-1/13

Pan buttons -Move the map left, right, up, and down.

PC10857RK —UN—01OCT09



Continued on next page

CZ76372,000014E -19-28APR11-2/13

Zoom buttons -Zoom the map larger and smaller.

PC10857RM —UN—01OCT09



CZ76372,000014E -19-28APR11-3/13

Toggle Map Size -Toggle map to a full screen view.

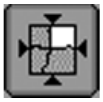
PC10857RO —UN—01OCT09



CZ76372,000014E -19-28APR11-4/13

Reset Zoom/Center Map - This button is used to re-center the machine icon on the map view page after zooming in and out or panning with the arrow buttons up, down, left, and right.

PC10857RP —UN—01OCT09



CZ76372,000014E -19-28APR11-5/13

Map View Toggle - The map can be toggled between three views by selecting the Map View Toggle button. When the button is pressed, the icon will change to one of the 3 icons shown in this section. However, the button will always remain in the same location.

PC10857RN —UN—01OCT09

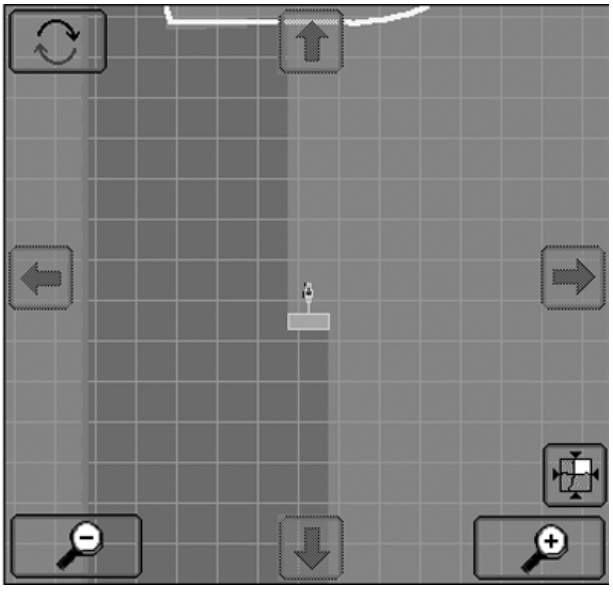


CZ76372,000014E -19-28APR11-6/13

Map View Options

Moving Overhead View

- The vehicle is fixed and stays centered on the map while the map moves.
- The direction of the vehicle travel is toward the top of the page.



PC10857RE —UN—01OCT09

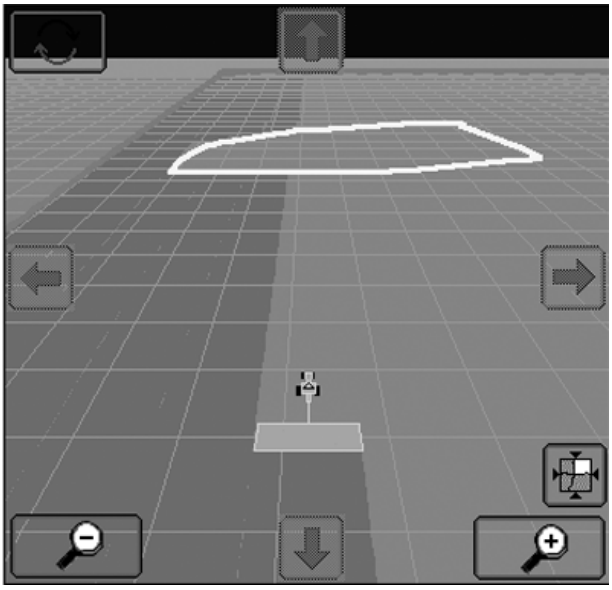
Moving Overhead View

Continued on next page

CZ76372,000014E -19-28APR11-7/13

Perspective View

- Functions similar to Moving Map View



PC10857RD —UN—01OCT09

Perspective View

CZ76372,000014E -19-28APR11-8/13

Fixed Overhead View

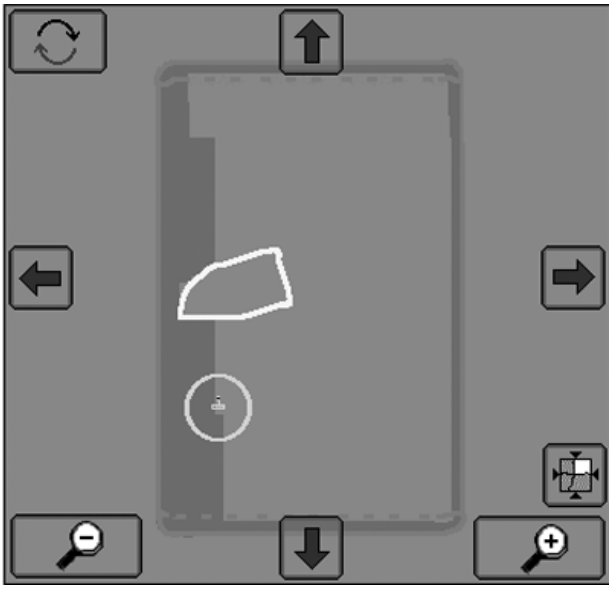
- The vehicle moves back and forth while the map is fixed.
- North is always at the top of the page.

Recording Start or Stop button – Map recording can be turned on and off manually or automatically. Go to the Equipment Softkey to select the recording source.

MENU >> GREENSTAR 3 PRO button >> EQUIPMENT soft key >> MACHINE tab >> RECORDING SOURCE drop down box.

This button is used to start and stop recording when the recording source is set to Manual. When an automatic recording source is selected in Equipment setup, this button will be disabled. When the red circle is blinking, coverage recording is on.

See EQUIPMENT softkey in the GreenStar General section for more details on automatic sources that can be used to turn recording on/off.



PC10857RF —UN—01OCT09

Fixed Overhead View

CZ76372,000014E -19-28APR11-9/13

Editing Map Legend – The Map Legend displays the values of the map colors.

1. Select the Edit button to change the range of the legend for maps that have color scales.
2. Enter the preferred maximum (A) and minimum (B) values in the window that appears.

PC10857RJ —UN—01OCT09



The Legend will then be divided into five colors automatically.

Continued on next page

CZ76372,000014E -19-28APR11-10/13

Coverage Map Toggle button – The map can be toggled between the Coverage Map and the current operation map.

PC10857RL —UN—01OCT09



CZ76372,000014E -19-28APR11-11/13

Map Settings button (A) – This button is used to set up the map view.

Foreground maps overlay on top of background maps.

Background Layer Options (B) – choose available layer to show as the background of the map view.

- Prescription Maps
- Arial Images

Foreground Layer Options (C) - choose between Coverage Only map or As-Applied if available.

- As-applied seed rate map
- As-applied spray rate map
- As-applied spread rate map

The As-Applied coverage map is used to show where and how much product has been applied in the field.

- As harvested (yield) map
- As harvested (moisture) map
- Tillage depth map
- Coverage Only map

The Coverage Only map is used to show where the machine has been in the field. This is the same coverage map that is displayed on guidance pages.

NOTE: If Coverage Only map is selected, the legend of the map view will read "Coverage only" and the Coverage Map toggle button will be disabled.

Guidance Lines (D) – Check this box if you would like your Guidance Lines to show on your map view.

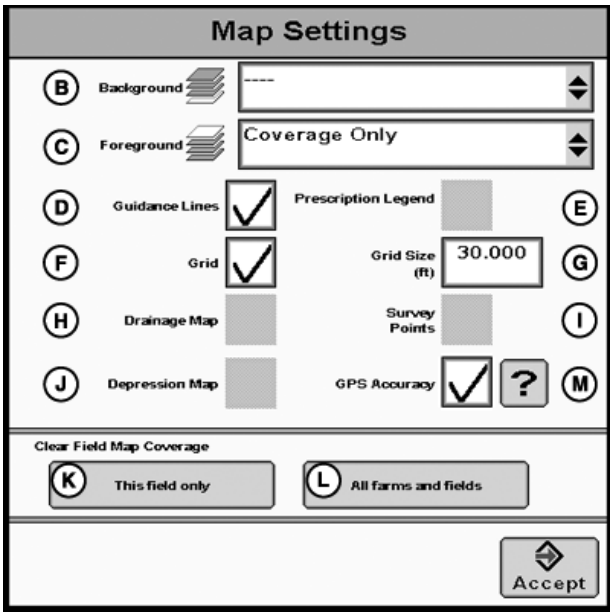
Prescription Legend (E) – Check this box if you would like your Prescription Legend to show on the map view page.

NOTE: An area of the prescription, that has been assigned a zero rate, will now appear black on your prescription map in the GS3.

Grid (F) – Check this box if you would like a grid pattern to show up in your map view.

Grid Size (G) – Enter the size you want the grid to represent on the map view.

Drainage Map (H) – Check this box if you would like to view your Drainage Map. (Surface Water Pro/Pro Plus Only)



PC12932 —UN—30SEP10

PC10857RW —UN—28OCT09



Map Settings Button (A)

Survey Points (I) – Check this box if you would like to view your Survey Points. (Surface Water Pro/Pro Plus Only)

Depression Map (J) – Check this box if you would like to view your Depression Map. (Surface Water Pro/Pro Plus Only)

Clear Field Map Data – Clear Coverage Only map data or As-Applied map data from the map view.

- Current Field (K)
- All Farms and Fields (L)

Maps are retained through power cycles and will remain until a Clear Field Map Data button is used to clear the map(s). Returning to a partially applied field will prompt the user to clear map or continue field task.

Display GPS Accuracy on Coverage Map (M) – Check this box to make the "Coverage Only" map paint orange when the Starfire receiver has reduced GPS accuracy.

Continued on next page

CZ76372,000014E -19-28APR11-12/13

Displaying GPS Accuracy on Coverage Map – This feature is specifically designed for Swath Control on Planters, but can be useful for any precision application. The “Coverage Only” map will paint an orange color when the GPS accuracy drops below the desired threshold. It will continue to paint blue when GPS accuracy is acceptable. Operating with reduced GPS accuracy may cause skips and overlaps when using Swath Control. Turn on the feature by checking GPS ACCURACY in Map Settings.

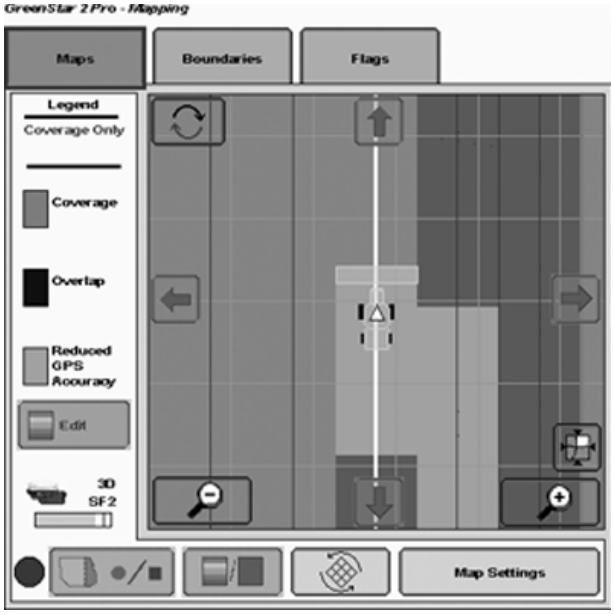
MENU >> GREENSTAR 3 PRO >> MAPPING >> MAP SETTINGS >> check GPS ACCURACY box

The threshold for desired GPS accuracy aligns with the black line in the GPS Accuracy Indicator bar graph under the StarFire receiver icon. See your StarFire manual for more information on the GPS Accuracy Indicator.

The threshold that causes the Coverage Map to paint orange aligns with the GPS Accuracy Indicator bar graph under the StarFire receiver icon. Both the map and bar graph will turn orange when GAI < 9. See your StarFire manual for more information on the GPS Accuracy Indicator.

GPS Accuracy Indicator (GAI)

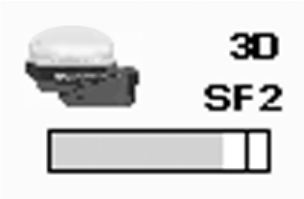
Overlapping coverage will paint the normal dark blue color whether or the overlapping coverage was recorded with reduced GPS accuracy.



PC12740 —UN—25AUG10

Display GPS Accuracy on Coverage Map

PC10857RQ —UN—01OCT09



GPS ACCURACY box

CZ76372,000014E -19-28APR11-13/13

Boundaries Tab

Select MENU > GREENSTAR 3 PRO > MAPPING > BOUNDARIES tab

The BOUNDARIES tab allows you to record exterior field boundaries as well as interior and headland boundaries. Boundaries calculate acreage and are saved on the USB drive to be unloaded in John Deere's APEX or other compatible desktop software. For best accuracy, exterior boundaries should be driven.

NOTE: Apex is not available in all EAME countries.

NOTE: Client, Farm, and Field can also be created on boundaries tab by selecting NEW from the drop down menus.

PC8663 —UN—05AUG05



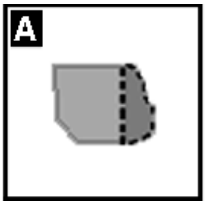
MENU Softkey

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8672 —UN—05AUG05



MAPPING Softkey

PC12933 —UN—30SEP10



Boundaries tab

CZ76372,000018F -19-28APR11-1/3

Available Boundary Types

Exterior — The perimeter of the field.

Passable Interior — The perimeter of an area inside the field which is not farmed, but can be crossed with the vehicle and implement (e.g. waterway).

Impassable Interior — The perimeter of an area inside the field which is not farmed, and cannot be crossed with the vehicle and implement.

Boundary type can be changed to Headland when either an Exterior or Interior boundary has been created. If one of these is created, the boundary type list will change.

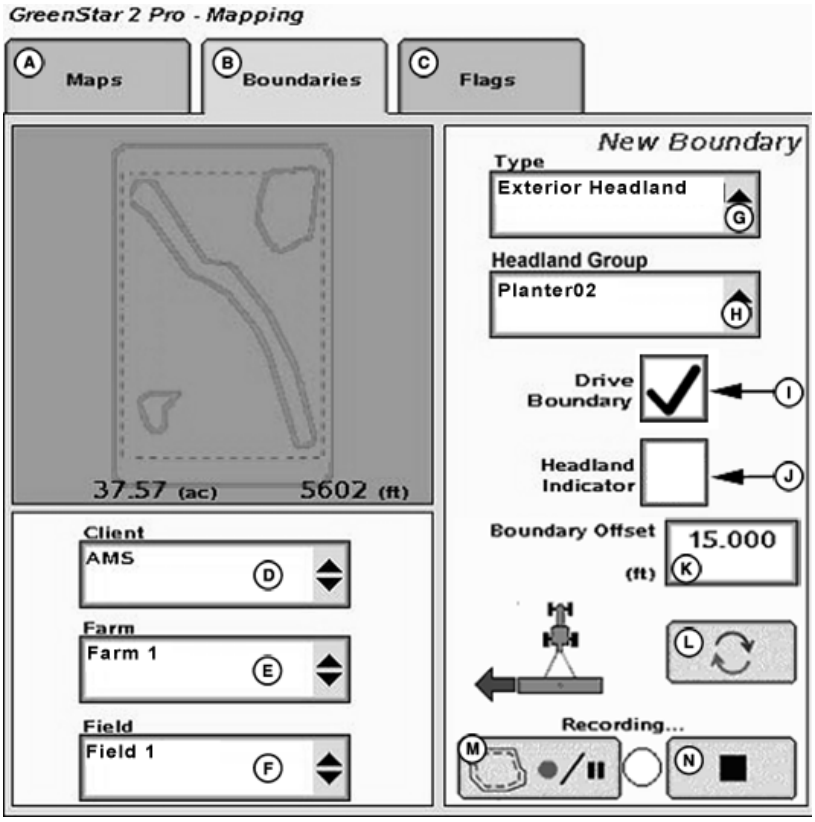


PC12925 —UN—27SEP10

Boundary Types

Continued on next page

CZ76372,000018F -19-28APR11-2/3



PC12926 —UN—27SEP10

Boundaries with Driven Exterior Headland Boundary

A—Maps Tab
B—Boundaries Tab
C—Flags Tab
D—Client Drop-Down Menu
E—Farm Drop-Down Menu
F—Field Drop-Down Menu
G—Type Drop-Down Menu
H—Headland Group Drop-Down Menu
I— Drive Boundary Check-Box
J— Headland Indicator Check-Box
K—Boundary Offset Input-Box
L— Receiver Offset Toggle
M—Record/Pause
N—Stop Recording

Exterior Headland — The end rows along the sides of the field where the end turns occur.

NOTE: For Exterior Headland, if the Headland Indicator box is checked, the display will count down the distance to the next headland on the Guidance map.

Interior Headland — The end rows or turn rows around an Impassable Interior Boundary.

Headland Group — A combination of one or more related headland boundaries. Different operations may use different headland groups. For instance, there may be a Planter group where the headlands are 36.6 m (120 ft), and a Field Cultivator group where the headlands are 27.4 m (90 ft). Different field operations can require different headlands.

Headland Boundaries can either be driven or offset from the Exterior or Interior Boundary.

NOTE: The defined Headlands need to be large enough for vehicle and implement to turn around without the use of brakes.

NOTE: Headlands are for use with iTEC Pro. Other GreenStar software may view headlands on the Guidance page, but will not utilize them.

NOTE: Swath Control functionality is based up on exterior, interior and impassable interior boundaries.

Headlands will show on the Guidance View tab as dashed pink lines to show where the headlands exist in maps and perspective views. Only Exterior Boundaries and Impassable Interior Boundaries can have a Headland Boundary.

CZ76372,000018F -19-28APR11-3/3

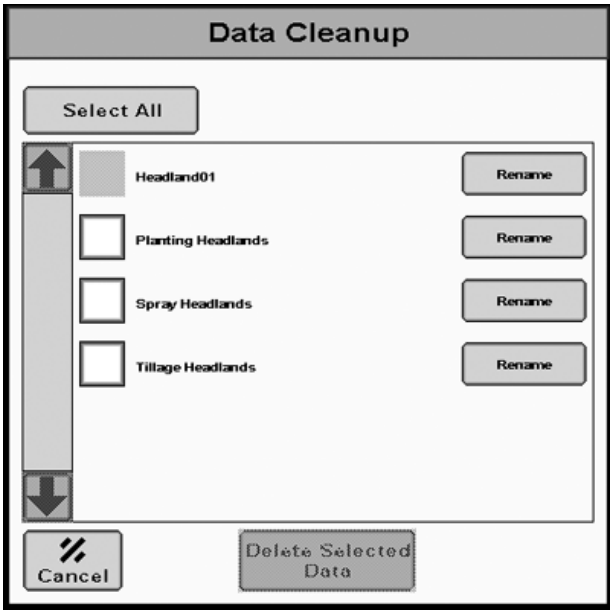
Delete and Rename Boundaries

Along with the Client, Farm, and Field, drop down lists, the Interior and Headland lists have the option to rename and delete entries. From the list, select <List Cleanup>.

To rename an entry, select the Rename button, and type the new name with the keyboard.

To delete entries, place checks next to the entries that need to be removed. Then select the Delete Selected Data button.

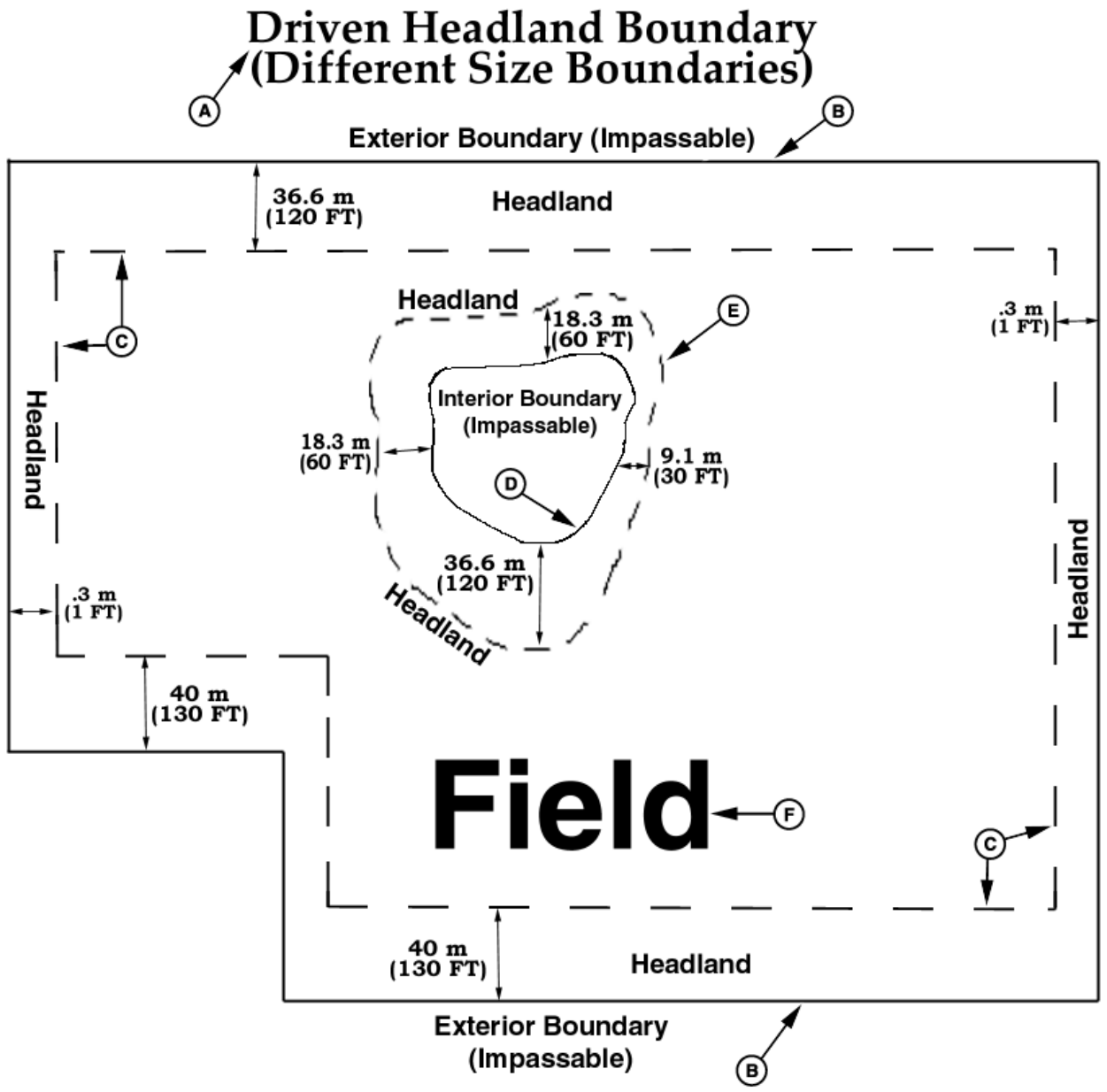
NOTE: Greyed out items can not be deleted because they may be related to other data or were created using desktop software.



Data Cleanup

CZ76372,00002E7 -19-19APR11-1/1

Driven Headland Offset Boundary



Driven Headland Boundary (Different Size Boundaries)

A—Driven Boundary (Different Size Boundaries)
B—Exterior Boundary (Impassable)
C—Exterior Headland
D—Interior Boundary (Impassable)
E—Interior Headland
F—Field

Creating a Driven Boundary

1. Select MAPPING softkey >> BOUNDARIES tab.
2. Select the Client, Farm, and Field from the drop-down menus.
3. Choose TYPE of boundary you want to drive from the drop-down menu.
4. Select DRIVEN from the creation method drop-down menu for Exterior Headlands or place a check in the DRIVE BOUNDARY check-box for Interior Headlands.
5. Enter the distance from the GPS receiver to the edge of the field. This can be done during the first pass around the field and then the distance would be half the implement width.

Continued on next page

6. Choose whether the boundary will be left or right of the tractor's receiver, or left or right of the implement's calculated position.

NOTE: Select the toggle button to record left or right of either the tractor receiver or the implement. If set from the implement, the location will be left or right of the rear of the implement.

IMPORTANT: When toggling the button to change the recording position, recording must be PAUSED or OFF.

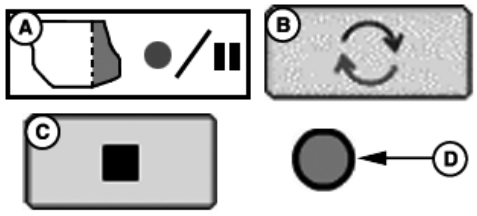
OUO6050,0000E76 -19-30SEP09-2/3

7. Press the Record/Pause button at least 1 or more seconds after the vehicle begins moving forward around the section of the field for the boundary being recorded. Record light should blink red and pink when recording is on. If you need to pause recording to drive around an obstacle, press the Record/Pause button. Record light will show solid red. When Record/Pause button is pressed again, recording will resume. The boundary will show a straight line from where recording was paused to where it was resumed.

NOTE: Many times the boundary should be recorded around an obstacle so iTEC Pro can alert the operator of these obstacles.

8. If recording was started along a straight section of the boundary, the Stop button can be pressed after turning the last corner near the straight section. If recording was started in a corner, press the Stop button just prior to the point where recording was started. Make sure the point where recording was stopped does not intersect the point where it was started. Pressing the stop button will complete the boundary by showing a straight line between the point where it was stopped and the starting point.

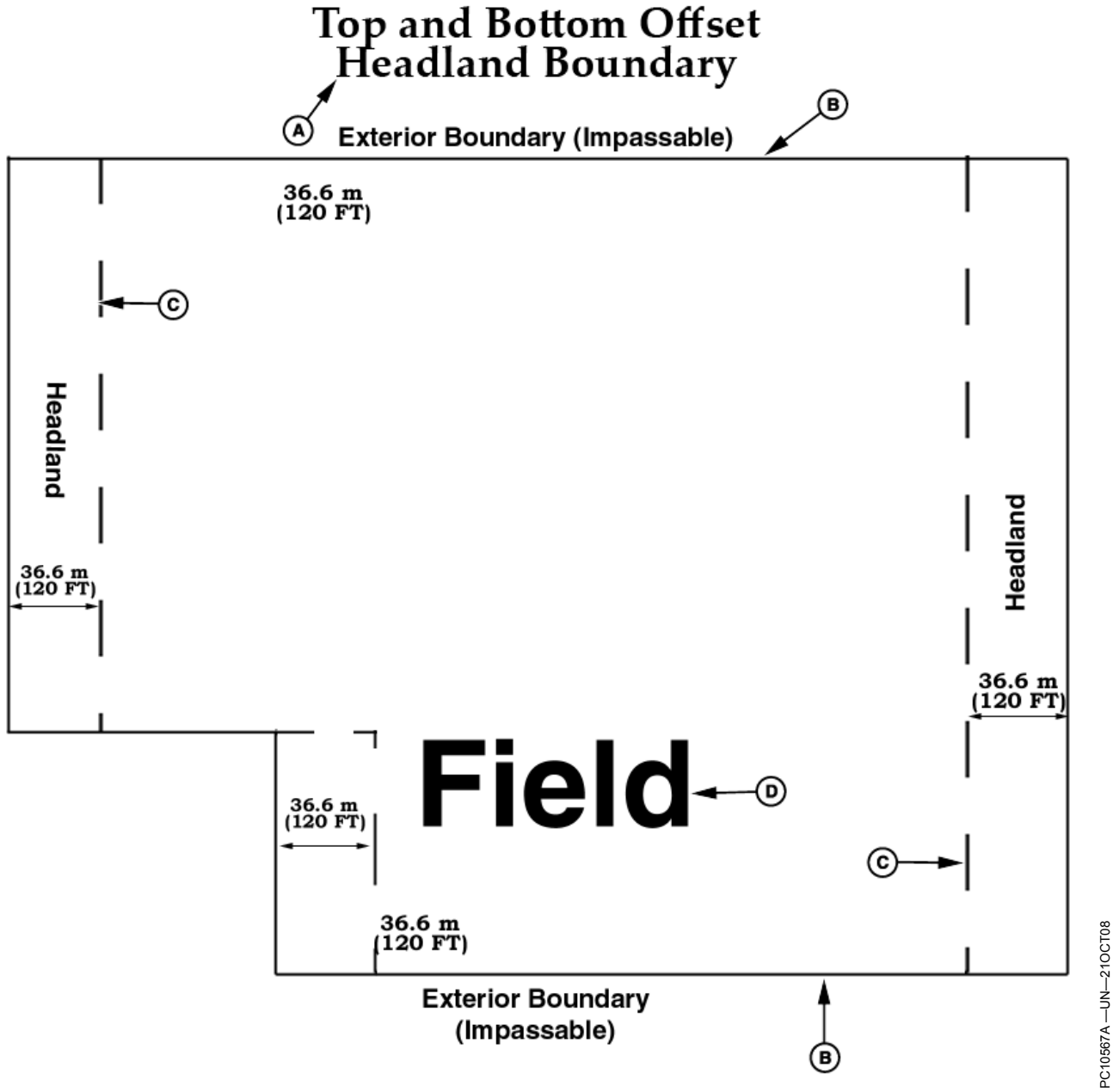
PC10501A —UN—21OCT08



A—Record/Pause Button
B—Toggle Button
C—Stop Recording Button
D—Recording Indicator Light

OUO6050,0000E76 -19-30SEP09-3/3

Top And Bottom Offsets Boundary



A—Top and Bottom Offset Headland Boundary

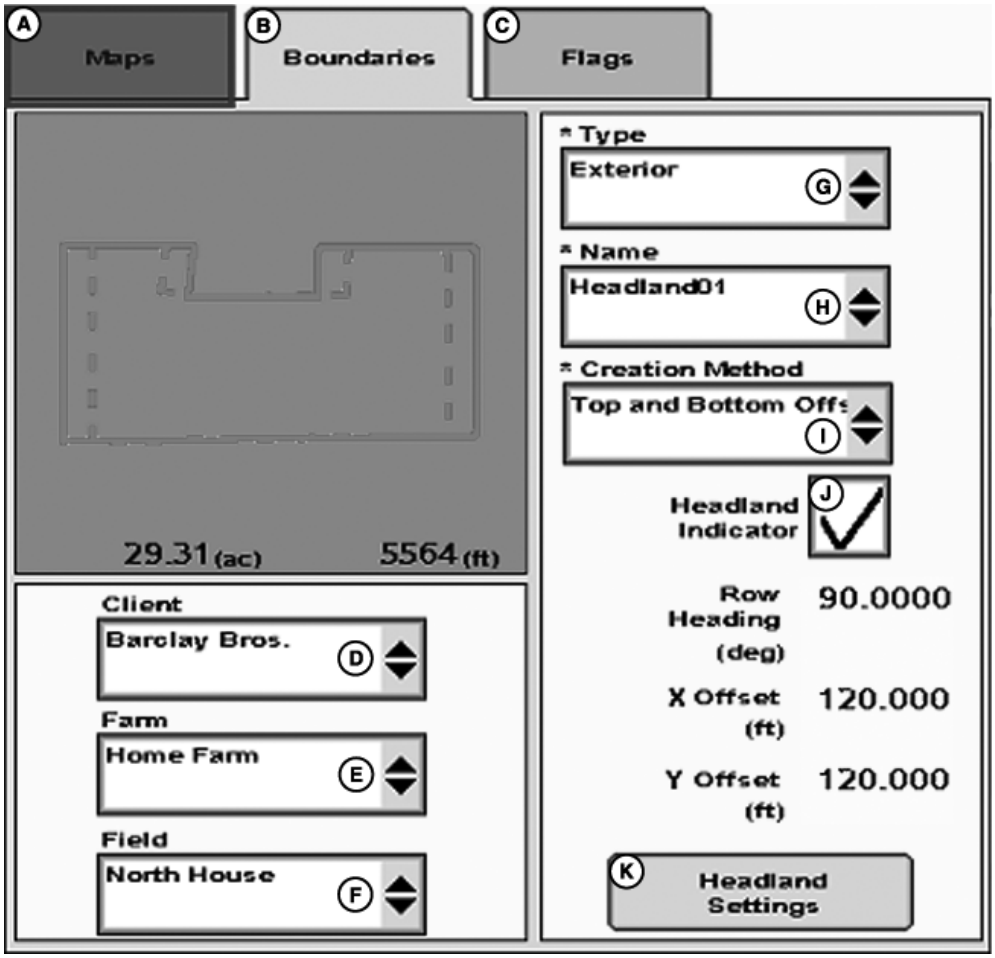
B—Exterior Boundary (Impassable)

C—Exterior Headland

D—Field

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JS56696,0000499 -19-28OCT08-1/3



PC11327A —UN—21OCT08

A—Maps Tab
B—Boundaries Tab
C—Flags Tab
D—Client Drop-Down Menu
E—Farm Name Drop-Down Menu
F—Field Name Drop-Down Menu
G—Boundary Type Drop-Down Menu
H—Headland Group Name Drop-Down Menu
I—Creation Method Drop-Down Menu.
J—Headland Indicator Check Box
K—Headland Settings Button

Creating Top and Bottom Headlands

1. Create or select an exterior boundary.
2. Choose Exterior Headland from the TYPE drop-down box

NOTE: This option is not available to interior headlands.

3. Enter the name of the headland boundary in the HEADLAND GROUP drop-down box. Several headland boundaries may be saved per field for different implement widths that may be used. Example: Planting headland group would be 24.4 m (80 ft) for a 16R30 if two passes are being made.

Continued on next page

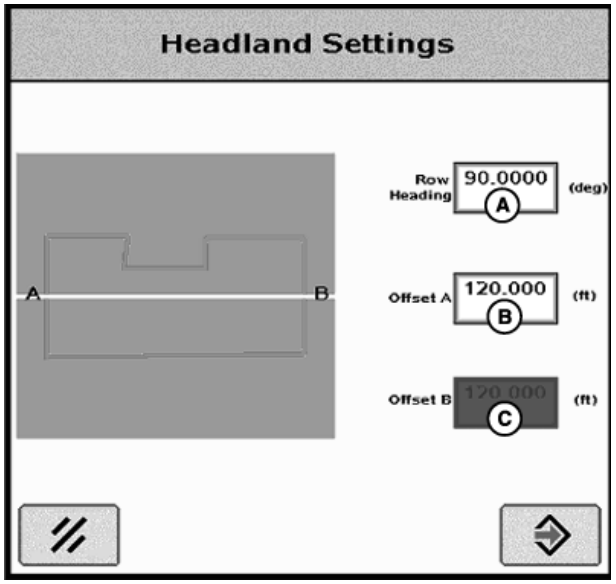
4. Select HEADLAND SETTINGS to make adjustments to the Row Heading, Offset X, and Offset Y. These are the default settings for the approximate heading of the rows in the field, and the width of headlands on the 'X' and 'Y' ends of the field.

   The heading that is entered does not need to be the exact heading. In the example, if the heading for the AutoTrac A-B line is 85 degrees, entering 90 degrees creates headlands on the east and west ends of the field. During tillage work, if the work is being done at 30 degrees from east and west, entering 120 degrees will give headlands on all sides of the field. In this case, Constant Offset headlands could also be used.

   Efforts have been made to make the most logical headlands based on the way the field normally is farmed. If desired headlands are not coming out as expected, change the Row Heading to several angles close to the direction of travel. If still not satisfactory, a Driven Headland boundary will need to be recorded.

NOTE: Top and bottom headlands are calculated as offsets and may not be appropriate for all fields. Headlands will be created when the Row Heading is more than 15 degrees from any side of the field.

   The defaults for Offsets X and Y are twice the implement width, as entered from the Machine/Implement page. The width of each headland can be changed. Example: if the west end has 32 76.2 cm (30 in.) headland rows, and the East end has 48 76.2 cm (30 in.) headland rows, enter 24.4 m (80 ft) for X and 36.6 m (120 ft) for Y.

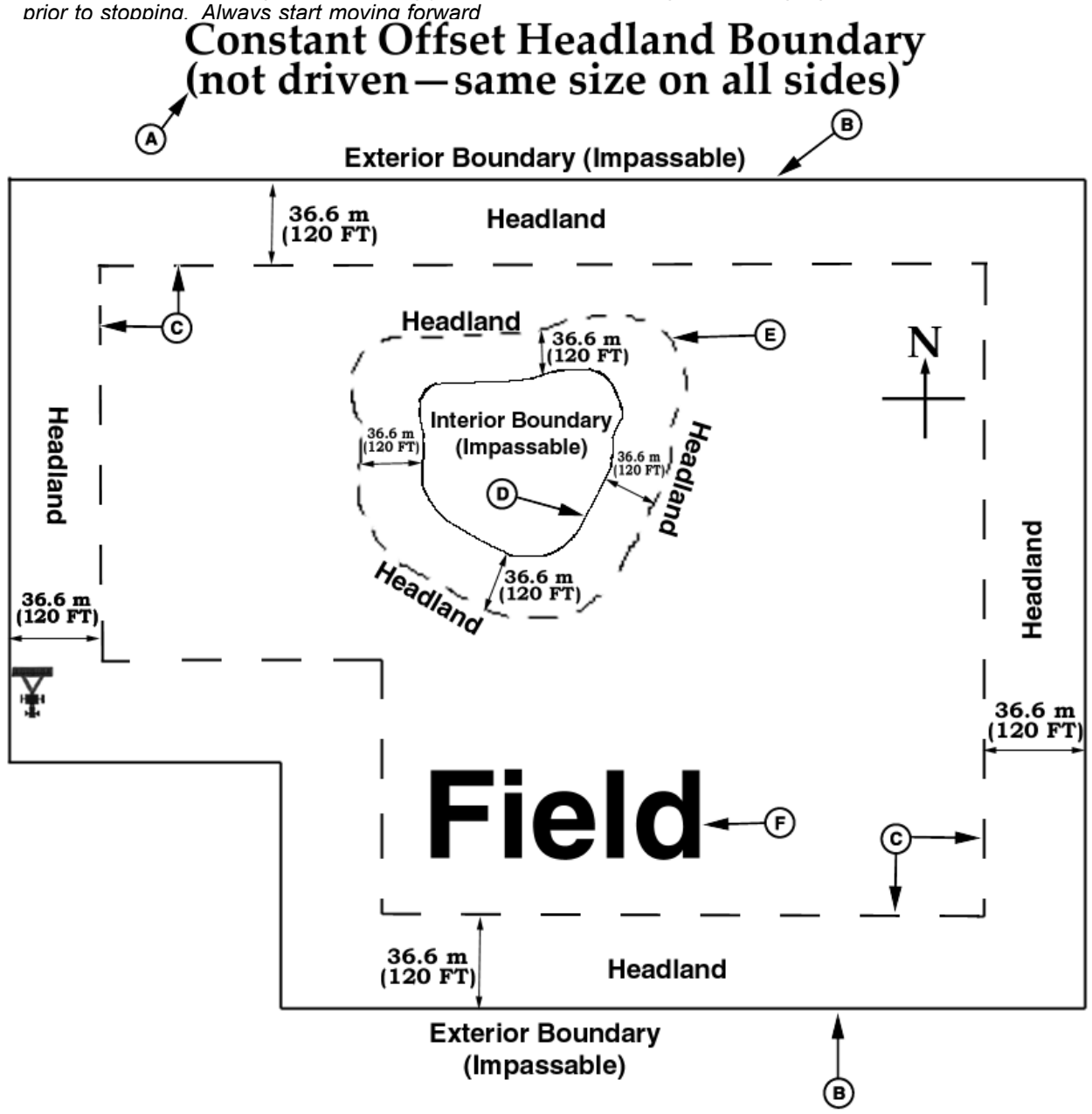


PC10504 —UN—11SEP07

JS56696,0000499 -19-28OCT08-3/3

Constant Offset Boundary

NOTE: A boundary cannot intersect itself. Press Record/Pause button to pause recording just prior to stopping. Always start moving forward first before pressing the Record/Pause button to begin recording again.



Constant Offset (not driven—same size on all sides)

A—Constant Offset Headland Boundary (not driven—same size on all sides)
B—Exterior Boundary (Impassable)
C—Exterior Headland
D—Interior Boundary (Impassable)
E—Interior Headland
F—Field

Headland Constant Offset Boundary

1. An Exterior Boundary must exist for the field.
2. Choose Exterior Headland from the TYPE drop-down menu

Continued on next page

3. Enter the name of the headland boundary in the HEADLAND GROUP drop-down menu. You can save several headland boundaries for a field for different implement widths.
4. In the Boundary Offset input box, indicate the distance from the headland to the exterior boundary (e.g. If the planter is a 16R30 and two passes are planted in the headland, enter 24.4 m (80 ft).
5. Repeat steps 2—4 for Impassable Interior Headlands. Also, an Interior Boundary must exist and Interior Headland must be chosen.

JS56696,000049A -19-06OCT08-2/2

FLAGS tab

FLAGS tab allows setup of flags for guidance and documentation.

There are three types of flags: line, point and area.

- Line flags marks tile lines. When a LINE FLAG button is pressed, FLAG ON button will flash, indicating flag is active and map will indicate flag lines. Pressing FLAG button again will de-activate flag.
- Point flags mark a specific point in a field like a rock, tree stump, or where machine ran out of seed or spray. Point flags can also be used to indicate locations for soil sampling and field scouting. When a POINT FLAG button is selected, a flag will be marked for that location. Multiple point flags can be selected for a particular field.
- Area flags are used to mark an area of interest such as a patch of weeds, a low spot in a field, or a tile line. Width of an area flag is equal to implement width in Equipment settings. When an AREA FLAG button is pressed, FLAG ON button will flash, indicating flag is active and map will indicate flag area. Pressing FLAG button again will de-activate flag.

Up to six flags can be configured. Select button to setup from drop-down box, then indicate a name and flag mode.

Flags can only be removed using desktop software.

OUO6050,00022BD -19-20NOV06-1/1

Guidance

Read This Manual

Before attempting to operate Parallel Tracking or AutoTrac, read this manual fully to understand components and procedures required for safe and proper operation.

This manual is for both Parallel Tracking and AutoTrac guidance systems applications.

OUO6050,0000D01 -19-22SEP07-1/1

Guidance Systems

Parallel Tracking shows your position in field relative to track that you determine with your first pass through field. Parallel Tracking has modes to follow a straight or Curve track and has a row finder mode. Using machine icon and line on your display, you know which way to steer in order to keep your path parallel with your last. Audible alerts accompany display so you can keep your eyes on field.

AutoTrac is an assisted steering system. After operator enters a reference path (Track 0) in AutoTrac, machine will then steer itself parallel to that track.

OUO6050,0000D02 -19-17OCT07-1/1

GUIDANCE softkey

The GREENSTAR 3 PRO - GUIDANCE screen contains three tabs:

VIEW tab

GUIDANCE SETTINGS tab

SHIFT TRACK SETTINGS tab

IMPORTANT: If changes are made while machine is in auxiliary mode, turn key off and wait for display's power light to turn off before starting the ignition. This allows display to shut down and save data.

To turn guidance on:

—Go to GUIDANCE softkey >> GUIDANCE SETTINGS tab >> TRACKING MODE

—Select a tracking mode other than GUIDANCE OFF

To turn guidance off:

—Select GUIDANCE softkey >> GUIDANCE SETTINGS tab >> TRACKING MODE drop-down box >> GUIDANCE OFF

The GUIDANCE softkey consists of three tabs which allow the operator to setup and view settings for Parallel Tracking, AutoTrac and Row Finder.

The following items are required for guidance to function:

- Tracking mode set to:
  - Row Finder
  - Straight Track
  - Adaptive Curves
  - AB Curves
  - Circle Track

  NOTE: Circle Track is available for Parallel Tracking , but the PivotPro module is required to AutoTrac in Circle Track mode.

- Track spacing (See equipment section of GreenStar Pro General Setup)
- Track 0 (Reference Path/Point)
- GPS signal (StarFire signal required for AutoTrac)

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8673 —UN—14OCT07



GUIDANCE softkey

The following items are optional when operating guidance:

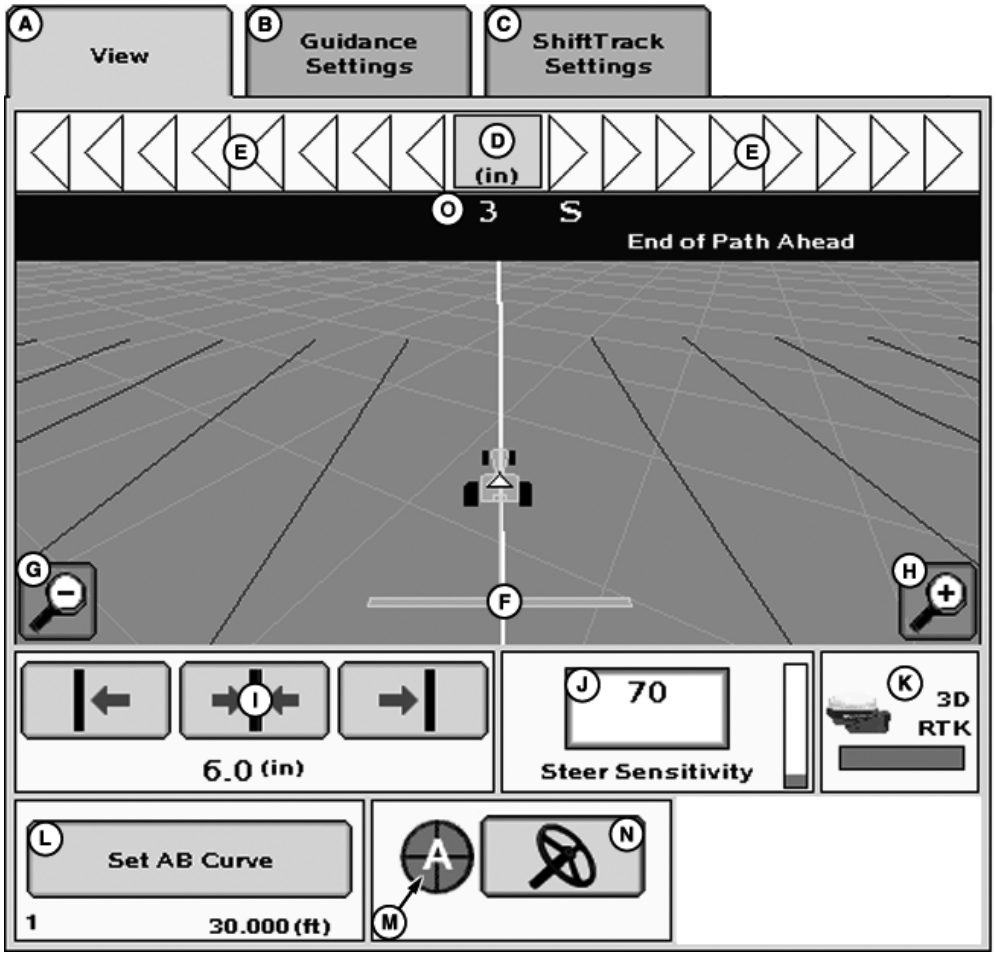
NOTE: If a client, farm, and field are selected only the Track 0's for that field will be displayed.

- Client, Farm, and Field (if not selected, all Track 0's are saved to - - - Client, Farm, and Field)
- Documenting field operational data (See setting Documentation Off in Documentation setup)
- Field Boundaries (Field Boundaries are required to create a headland boundary and enable headland boundary alerts. See Setup Mapping for more information.)
- Flags
- Coverage Map

NOTE: It is important that the system be setup properly. Read and follow each procedure to assure proper setup and operation of the guidance system.

CZ76372,0000190 -19-29SEP10-1/1

VIEW tab



PC12578 —UN—22APR10

GREENSTAR 3 PRO - GUIDANCE—VIEW tab

A—View tab
B—Guidance Settings tab
C—Shift Track Settings tab
D—Off-track Error
E—Path Accuracy Indicator
F—Guidance Icon
G—Zoom Out button
H—Zoom In button
I— Shift Track Buttons
J— Steering Sensitivity
K—GPS Indicator
L— Set AB Curve button
M—AutoTrac Status
N—Steer On/Off
O—Track Number

The VIEW tab allows the operator to view and/or change the following:

- Path Accuracy Indicator
- Off-track error
- Track number and direction
- AutoTrac deactivation messages
- Turn predictor or Headland Alert
- Guidance Icon
- Shift Track buttons
- AutoTrac Status Pie
- Steer on/off button
- GPS indicator
- Set Track 0 (set circle, record, set AB curve)
- Track 0 name
- Track spacing
- Steering Sensitivity

Path Accuracy Indicator—Is a visual indicator of off-track error. The indicator consists of eight arrows on each side of the off-track error box. The arrows will light up indicating the direction the vehicle must be steered to get back on the A-B line. Each arrow represents a distance. This distance is defined in the GUIDANCE SETTINGS tab under Accuracy Bar Step Size.

Example: The bar step size has been set to 10 cm (4 in.). This means that each arrow that lights up represents 10 cm (4 in.) of off-track error. If two arrows are lit up on the left side of the Path Accuracy Indicator it would represent the vehicle being 20 cm (8 in.) to the right of the desired A-B line. Thus the operator must steer the vehicle 20 cm (8 in.) to the left to get to the desired A-B line.

Off-track error—Total off-track error is numerically displayed in the box. Off-track error will be displayed in inches up to 99 cm (35 in.) of off-track error. If off-track error exceeds 99 cm (35 in.) the distance displayed will change to meters (feet).

Track number—Represents the track number the vehicle is guiding off of. It also tells which direction the track is located from the original Track 0 set for the field.

Continued on next page

CZ76372,00001A0 -19-30SEP10-1/9

AutoTrac deactivation message—Each time AutoTrac is deactivated text is displayed indicating the reason why AutoTrac deactivated, in the upper left corner of the perspective view. Messages are also displayed as to why AutoTrac did not activate. The deactivation messages display for 3 seconds and then disappear. These messages can be turned off and on from the Guidance Settings tab.

Deactivation Message	Description
Steering wheel moved	Operator turned steering wheel
Speed too slow	Vehicle speed is below minimum required speed
Speed too fast	Vehicle speed is above maximum allowed speed
Invalid gear	Vehicle operating in an invalid gear
Track number changed	Track number changed
Invalid GPS signal	SF1, SF2, or RTK signal was lost
SSU fault	See John Deere dealer
Invalid display messages	Check display settings
Invalid display settings	Check guidance settings and Track 0 setup
No AutoTrac Activation	No AutoTrac Activation on GS3
Heading error too large	Vehicle is at an angle greater than 45 degrees from track
Off-track error too large	Vehicle not within 40% of track spacing
Out of seat	Out of seat too long
Oil temp too cold	Hydraulic oil not above minimum required temperature
No TCM corrections	Make sure TCM is turned on
Invalid SSU activation	Need SSU activation code. See John Deere dealer.
SSU in diagnostic mode	Fuse is in diagnostic slot in vehicle fuse box – remove fuse.
Header off	Header was turned off
Road mode	In transport gear
Invalid SSU voltage	See John Deere dealer
Reverse timeout	In reverse gear for more than 45 seconds
Vehicle too slow	AutoTrac below minimum speed
Curve too sharp	Maximum curvature has been exceeded
Vehicle not moving in a forward direction	Vehicle must be in forward gear to activate
Vehicle shutting down	Vehicle is shutting down
Gear data error	See John Deere dealer
Resume switch error	See John Deere dealer
Keyswitch error	See John Deere dealer
SPFH AutoTrac switch is not on	Make sure SPFH AutoTrac switch is turned on
SPFH Quick Stop switch is on	Make sure SPFH Quick Stop switch is turned off

AutoTrac Deactivation Messages

Turn Predictor/Headland Alert—A visual indicator is displayed 10 seconds before approaching a predicted turning point or headland (must be defined). When the system detects a predicted turning point or headland, the distance to that turning point or headland will be displayed and will count down the intersection to that turning point or headland. The visual indication is accompanied by tones.

NOTE: If a headland boundary is defined and headland indicator is selected it will be displayed instead of turn predictor.

Guidance Icon—The icon represents the implement and the pointer on the icon represents the center of the implement. The icon changes width based upon the entered implement width.

GPS Indicator—Indicates what level of accuracy the StarFire receiver is currently operating at (3D, SF2, SF1, RTK). If using a GPS receiver other than a StarFire, the text 3D GPS will be displayed but the indicator bar will not fill.

NOTE: AutoTrac SF1 must have a GPS accuracy level of SF1 and AutoTrac SF2 must have a GPS accuracy of SF2 or RTK.

Steer On/Off—The Steer On/Off button transitions AutoTrac from being disabled to an enabled mode.

Shift Track—Shift track is used to adjust position of machine left, center or right of set track. Shift track can be used to compensate for GPS drift. Drift is inherent to any satellite-based, differentially corrected GPS system.

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CZ76372,00001A0 -19-30SEP10-2/9

AutoTrac Status Pie Allows AutoTrac user to view the stage that AutoTrac is in.

- INSTALLED (1/4 of pie)—AutoTrac SSU and all other hardware necessary for use are installed.
- CONFIGURED (2/4 of pie)—Valid AutoTrac Activation, Tracking Mode has been determined and a valid Track 0 has been established. Correct StarFire signal level for AutoTrac Activation is selected. Vehicle conditions met.
- ENABLED (3/4 of pie)—Steer Icon has been pressed and “Steer On” is displayed.
- ACTIVATED (4/4 of pie with “A”)—Resume switch has been pressed and AutoTrac is steering the vehicle.

(See AutoTrac Status Pie in this section for more information.)

Steering Sensitivity—Allows AutoTrac users to adjust the vehicles steering sensitivity. To adjust steering sensitivity select the input box and enter the desired steering sensitivity value via numeric keypad and select the enter button.

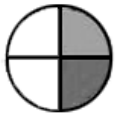
Set Track 0 button—Allows the operator to set Track 0, in the following modes, using the following methods:

PC8832 —UN—25OCT05



Stage 1—INSTALLED

PC8833 —UN—25OCT05



Stage 2—CONFIGURED

PC8834 —UN—25OCT05



Stage 3—ENABLED

PC8835 —UN—25OCT05



Stage 4—ACTIVATED

CZ76372,00001A0 -19-30SEP10-3/9

Straight Track Mode

- Set Track 0 button

PC12934 —UN—30SEP10



Set Track 0 Button

CZ76372,00001A0 -19-30SEP10-4/9

Circle Track Mode (only available with Pivot Pro Module)

- Set Circle Button

PC12935 —UN—30SEP10



Set Circle Button

CZ76372,00001A0 -19-30SEP10-5/9

Adaptive Curves Mode

- Record button

PC12634 —UN—09JUN10



Adaptive Curves Record Button

Continued on next page

CZ76372,00001A0 -19-30SEP10-6/9

AB Curves Mode

- Record button

PC12936 —UN—30SEP10



Set AB Curve Button

CZ76372,00001A0 -19-30SEP10-7/9

Row Finder Mode

- Set Row Button

PC12937 —UN—30SEP10



Set Row Button

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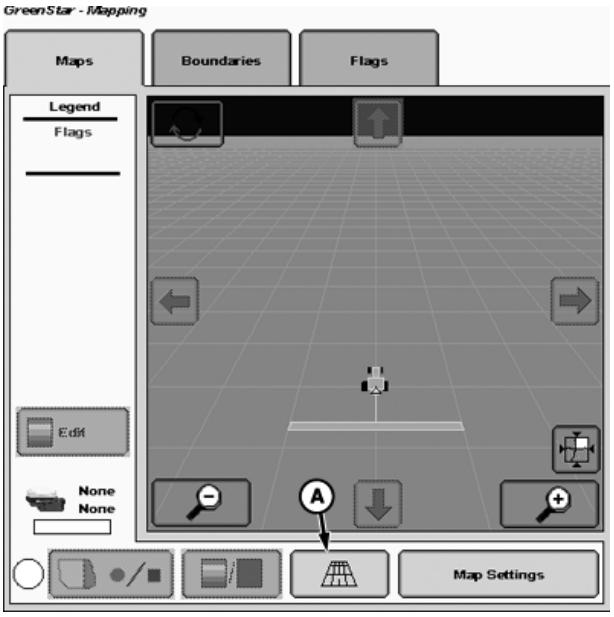
CZ76372,00001A0 -19-30SEP10-8/9

Moving Map view and Perspective View

The display can now toggle between the Moving Map view and the Perspective View. Use buttons (A) and (B) to move from one screen to the other.

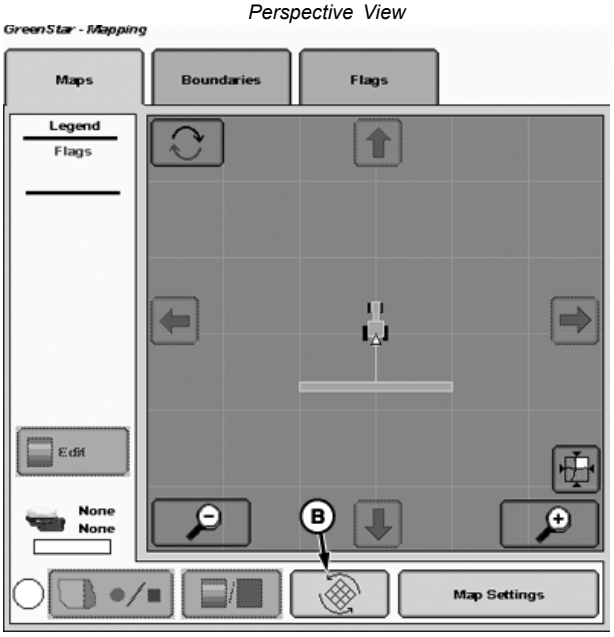
A—Toggles Screen to Moving Map View

B—Toggles Screen to Perspective View



PC12743 —UN—27AUG10

Perspective View

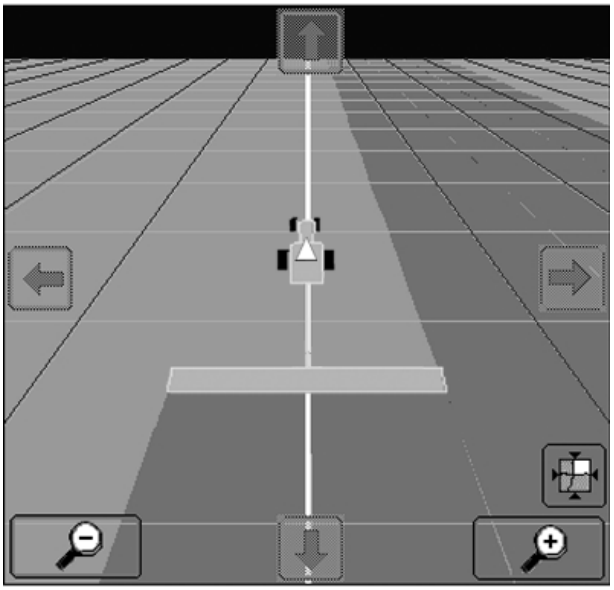


PC12744 —UN—27AUG10

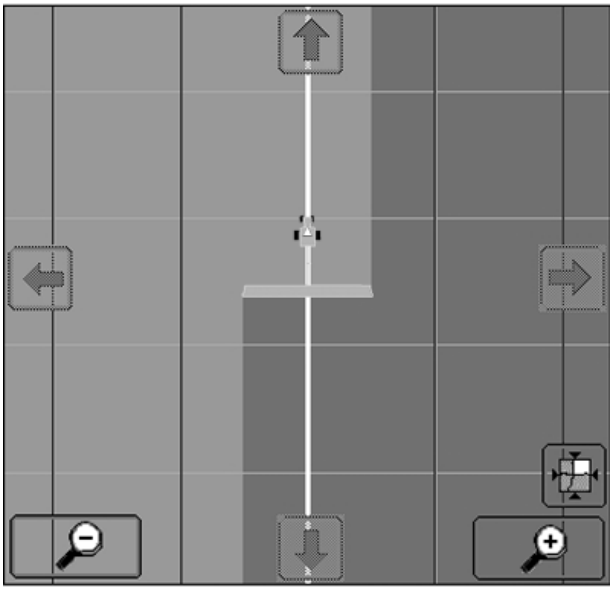
Moving Map View

CZ76372,0000150 -19-27AUG10-1/1

Full Screen Mapping



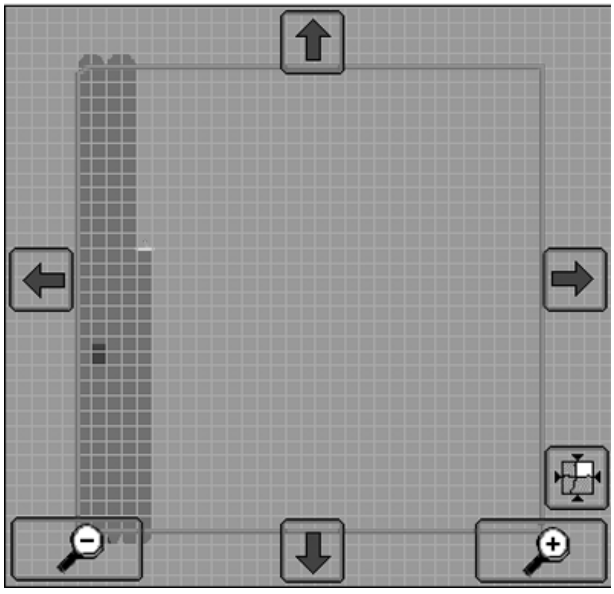
Perspective View



Moving Map View

GREENSTAR 3 PRO>> MAPPING softkey

The display can now show the mapping view from one edge of the screen to the other. The toggle button switches between Perspective View, Moving Map View, and Fixed Field View.



Fixed Field View

PC9347 —UN—06SEP06



Toggle Button

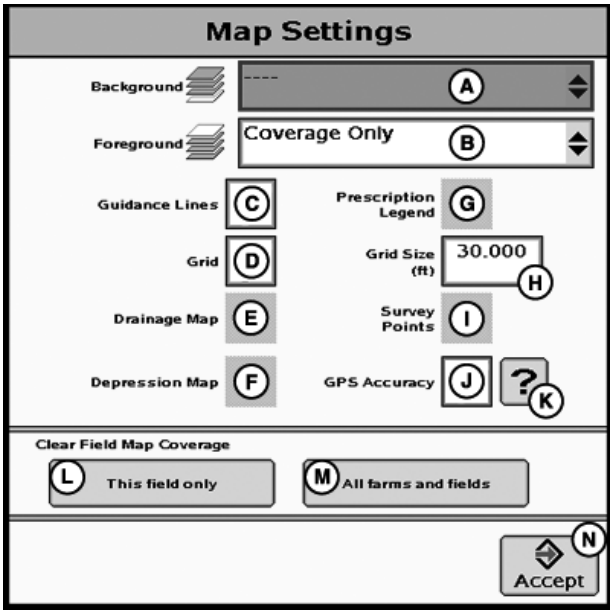
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CZ76372,0000069 -19-09JUL10-1/2

Coverage Maps Select the foreground drop-down box and choose coverage or as-applied if available for the type of coverage layer to display on the perspective view and maps screens. (See Equipment softkey to select recording softkey.)

A/B lines can be displayed on the maps by checking A/B Lines checkbox (C).

A—Background
B—Foreground
C—Guidance Lines
D—Grid
E—Drainage Maps
F—Depression Map
G—Prescription Legend
H—Grid Size
I— Survey Points
J— GPS Accuracy
K—GPS Diagnostics
L—Clear Field Map Date—This Field Only
M—Clear Field Map Date—All Farms and Fields
N—Accept Button



Map Settings

CZ76372,0000069 -19-09JUL10-2/2

GUIDANCE SETTINGS tab

The GUIDANCE SETTINGS tab allows setup of the following:

- **Guidance Mode—**allows operator to select between:
  - Guidance Off: For use when only documentation is needed.
  - Row Finder: Used in standing row crop applications to mark end of a pass and guide operator to next pass.
  - Straight Track: Uses straight line parallel passes.
  - Adaptive Curves: Uses a manually driven initial pass, then guides off of previous pass.
  - AB Curves uses a manually driven curved path with two end points (beginning and end) to generate parallel passes.
  - Circle Track: (only available with optional PivotPro module) Uses a center pivot center point location to define concentric circles (tracks).
- **Tracking Tones—**can be turned on and off and be set to alert operator at a specified off-track distance. To change distance at which tracking tones are activated, select input field and enter a value between 10—60 cm (4—24 in.). Tracking tones can be used as an audible indication of steering direction. If track is right of machine, two low beeps will sound, if left of machine a single high beep will sound. Alarm will repeat twice a second until off-track error between machine and desired track is less than value entered.
- **Turning View—**can assist operators to guide vehicle from one pass to the next by showing an overhead view of the field instead of the perspective view while turning around. This feature can be turned on or off by selecting or deselecting TURNING VIEW check box.
- **Turn Predictor—**alerts operator by predicting the end of pass. This feature can be turned on or off by selecting or deselecting Turn Predictor check box.
- **AutoTrac Deactivation Message—**shows operator why AutoTrac deactivated.
- **Lead Compensation—**shows how far down current track guidance looks to for such things as turns. Used with Parallel Tracking only.
- **Accuracy Bar Step Size—**used to set the value of off-track distance each arrow on the Path Accuracy Indicator represents.
- **Vehicle Heading Arrow—**aids in tractor and implement alignment when an indication of heading direction is available

OUO6050,00021E0 -19-14NOV06-1/1

Turning View

NOTE: Track 0 must be established for turning view to be active.

Select the check box next to Turning View to set turning view on or off.

Turning view provides a visual indicator of machine relationship to closest track as machine turns. This view can be used as a guide when turning into next track.

Turning View will appear in Straight Track, Curve Track, Circle Track, and Row Finder modes once vehicle has turned more than 45 degrees from track heading. The Screen will revert back to perspective view once vehicle is within approximately 5 degrees of track.

The operator has the ability to cancel the Turning View once the screen transitions into turning view with a cancel button that appears in the top left corner of the guidance view. Once the cancel button is selected the screen will switch back to the perspective view.

OUO6050,00021E1 -19-14NOV06-1/1

Turn Predictor

Turn predictor is intended to only predict turn point of a vehicle using Parallel Tracking or AutoTrac. It is NOT a headland alert. Because actual field boundary is unknown, turn predictions are based solely on previous turn behavior of vehicle. Turn predictions will not coincide with field boundary if field boundary is not linear and continuous, or if operator makes turns before or after field boundary.

NOTE: Turn predictor cannot be turned off if no seat switch is present on the vehicle.

Parallel Tracking—Turn Predictor will default to ON. To turn off go to MENU >> GREENSTAR 3 PRO button >> GUIDANCE softkey >> GUIDANCE SETTINGS tab. Deselect the check box. Once turned OFF, it will remain off through power cycles until manually turned back on by operator. Turn OFF will be displayed on guidance screen when turn predictor is turned off.

AutoTrac—Turn Predictor will default to ON after every power cycle or after every seat switch time-out. To turn off go to Menu >> GREENSTAR 3 PRO button>> GUIDANCE softkey >> GUIDANCE SETTINGS tab. Deselect the check box. Turn Predictor cannot be turned off on vehicles with out an operator presence switch tied to CAN line. Once turned OFF, it will remain off only until next power cycle, seat switch time-out, or if manually turned back on by operator. Turn OFF will be displayed on guidance screen when turn predictor is turned off.

Whenever Display resets Turn Predictor back to ON after a seat switch time-out (operator out of seat for 7 seconds on tractors, 5 seconds on combines and sprayers), it will display an alert indicating Turn Predictor has been reset to ON due to operator leaving seat. An option will be available allowing the operator to turn it OFF again from the alert screen.

CZ76372,0000291 -19-12JAN11-1/1

Recording Turn Points

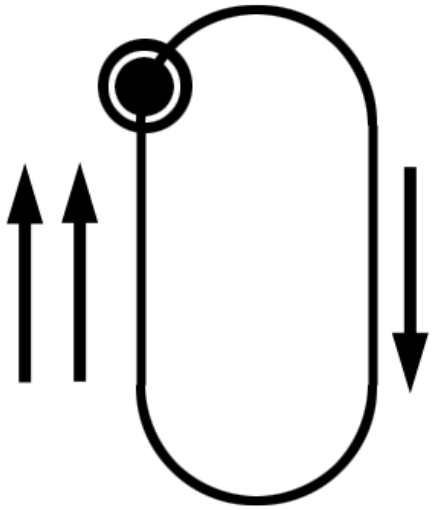
For a new turn point to be recorded for current track, vehicle must travel along track for more than 10 seconds, at a speed greater than 0.8 km/h (0.5 mph). A turn point will be recorded at a point at which AutoTrac is deactivated and a point in which the heading error exceeds 45 degrees.

OUO6050,0000D0A -19-17OCT07-1/1

Predicting Turn Points

To predict a turn, display must have at least one stored turn point that is within 8 tracks of current track and on same end of field that vehicle is moving towards. Turn XXXX m (ft) will be displayed on Perspective View screen as soon as predicted turn point has been calculated for a newly acquired track. An advance notification, both audible (beep) and visual (Turn text changing to yellow from green), will annunciate at approximately 10 seconds prior to actual predicted turn. A turn notification, both audible (two beeps) and visual (Turn text changing to red), shall annunciate when GPS position crosses predicted turn point.

NOTE: XXXX can represent any value depending upon the location of the machine.



PC8216 —UN—28MAY04

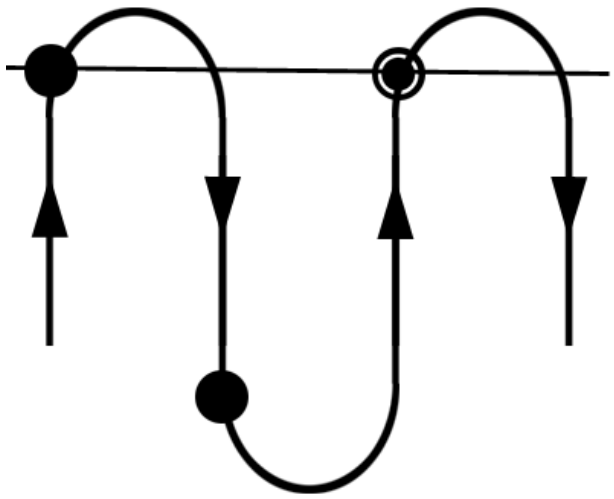
The following are examples of how turns are predicted.

1. The end-point of current track if one exists.

Continued on next page

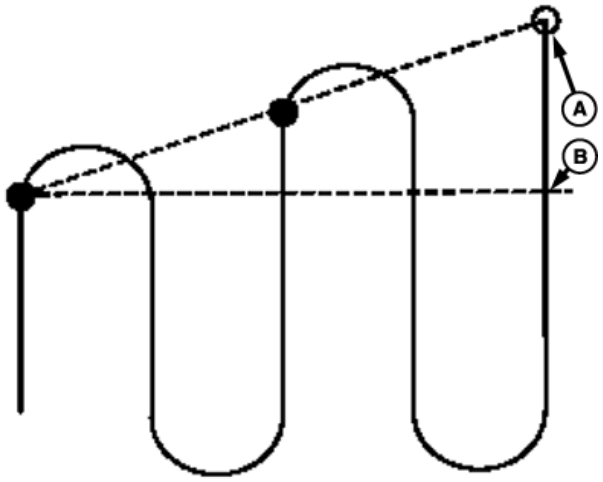
2. The intersection of current track and a perpendicular line through 1 stored turn point, if only 1 stored point exists within 8 closest tracks.
3. The intersection of current track and line through 2 closest stored turn points, if 2 or more stored points exist within 8 closest tracks.
4. If 3 or more stored points exist within 8 closest tracks, closest point will be checked to make sure it falls within 10 meters of projected line through 2nd and 3rd closest points. If closest point is not within this distance, then turn prediction will be based only on perpendicular line through closest point.

A—Point of Turn Prediction **B—NOT Point of Turn Prediction**

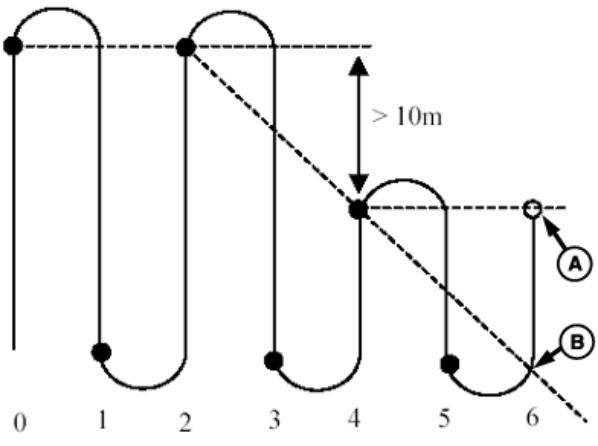


PC8217 —UN—28MAY04

A—Point of Turn Prediction **B—NOT Point of Turn Prediction**



PC8218 —UN—27MAY04



PC8219 —UN—27MAY04

OUO6050,00021E4 -19-06NOV08-2/2

Lead Compensation

NOTE: This feature is disabled when working in Curve Track or AutoTrac modes.

Tracking lead compensation is used to calculate a position in front of receiver more closely associated with front of machine. Tracking lead compensation helps minimize over steering when lining up with a track and position delays observed when making a turn. Value entered will depend on speed of travel, type of machine, and user preference. Default setting for lead compensation is 127 cm (50 in.) Settings range from 0-250 cm (0-100 in).

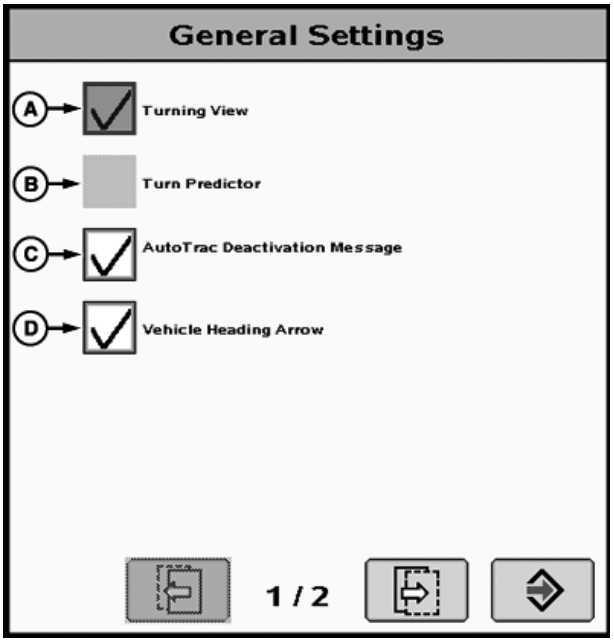
Recommended Tracking Lead Compensation	
Machine Type	**Lead Compensation**
Sprayer	183 cm (72 in.)
Combines	183 cm (72 in.)
Row Crop Tractor	71 cm (28 in.)
4WD Tractor	203 cm (80 in.)
Track Tractors	127 cm (50 in.)

OUO6050,00021E5 -19-14NOV06-1/1

Vehicle Heading Arrow

Place a check in Vehicle Heading Arrow check box (D) to display an arrow on the Guidance View page indicating heading direction after a line acquisition occurs. Vehicle Heading Arrow provides indication of vehicle position in relation to the AutoTrac line.

A—Turning View
B—Turn Predictor
C—AutoTrac Deactivation Message
D—Vehicle Heading Arrow

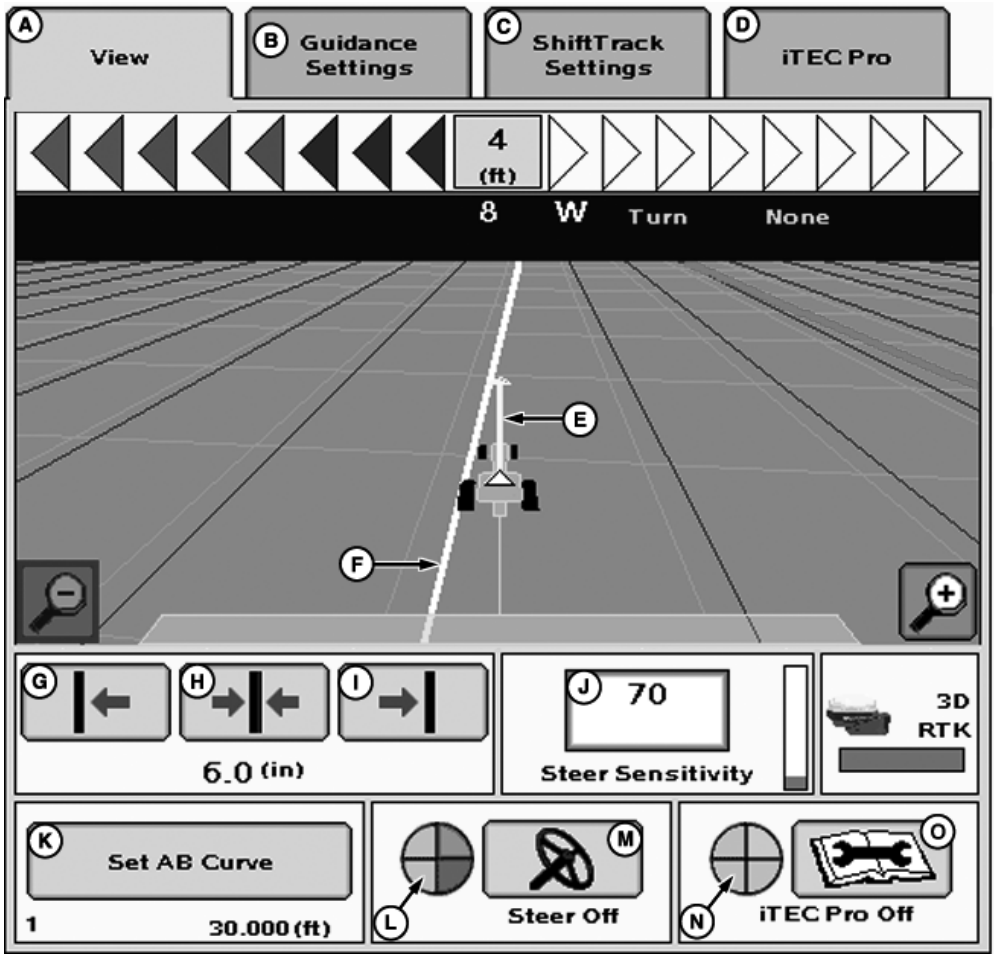


PC12223 —UN—31AUG09

Guidance General Settings Page 1

Continued on next page

JS56696,00006DA -19-31AUG09-1/2



PC12580 —UN—27APR10

Vehicle Heading Arrow

A—View tab
B—Guidance Settings tab
C—Shift Track Settings tab
D—iTEC Pro tab
E—Vehicle Heading Arrow
F—AutoTrac Guidance Path
G—Shift Track Left
H—Shift Track Center
I— Shift Track Right
J— Steer Sensitivity
K—Set AB Curve
L—AutoTrac Status Pie
M—AutoTrac Enable
N—iTEC Pro Status Pie
O—iTEC Pro Diagnostics

When Heading Error is less than 0.5 degrees, Vehicle Heading Arrow (E) turns green.

When Heading Error is greater than 0.5 degrees, Vehicle Heading Arrow (E) turns yellow.

Vehicle Heading Arrow provides an indication to vehicle's position in relation to the guidance path (M) during a line acquisition. This feature helps ensure vehicle is square to the line before beginning a pass.

Once the vehicle has acquired the line and traveled in a forward direction for 10 seconds at more than 3.2 km/h (2 mph), the Vehicle Heading Arrow disappears.

JS56696,00006DA -19-31AUG09-2/2

SHIFT TRACK SETTINGS tab

SHIFT TRACK SETTING tab allows setup of the following:

- Shift On/Off - shift track feature can be turned on/off by selecting or deselecting SHIFTS ON/OFF.
- Small Shifts Settings - Range 1—30 cm (0.4—12 in.) Small shifts are active while AutoTrac is active.
- Large Shifts Settings - Range 30—406 cm (12—160 in.).

  NOTE: Large Shifts are disabled when AutoTrac is active or when operating in Curve Track mode.

- Clear All Shifts - Used to clear all shifts for entire field, restoring original position of Track 0, and consequently adjusting position of all tracks in field.

  NOTE: AutoTrac has to be deactivated to use this feature.

  Available in Straight Track mode only.

Shift Track

Shift track is used to adjust position of machine left, center or right of set track. Shift track can be used to compensate for GPS drift. Drift is inherent to any satellite-based, differentially corrected GPS system.

Shift Track shifts track 0, and all AB lines associated with this track, right or left the pre-specified distance. An operator may also "re-center" displayed line on Guidance icon.

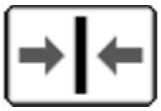
To move line to left, select SHIFT LEFT button. To move line to right, select SHIFT RIGHT button. Each time button is pressed, line will move the amount defined in the SHIFT TRACK SETTINGS tab. The amount is displayed under the Shift Track buttons. To re-center line on vehicle's current location select RE-CENTER button.

PC8706 —UN—22AUG05



Shift Left

PC8707 —UN—22AUG05



Re-Center

PC8708 —UN—22AUG05



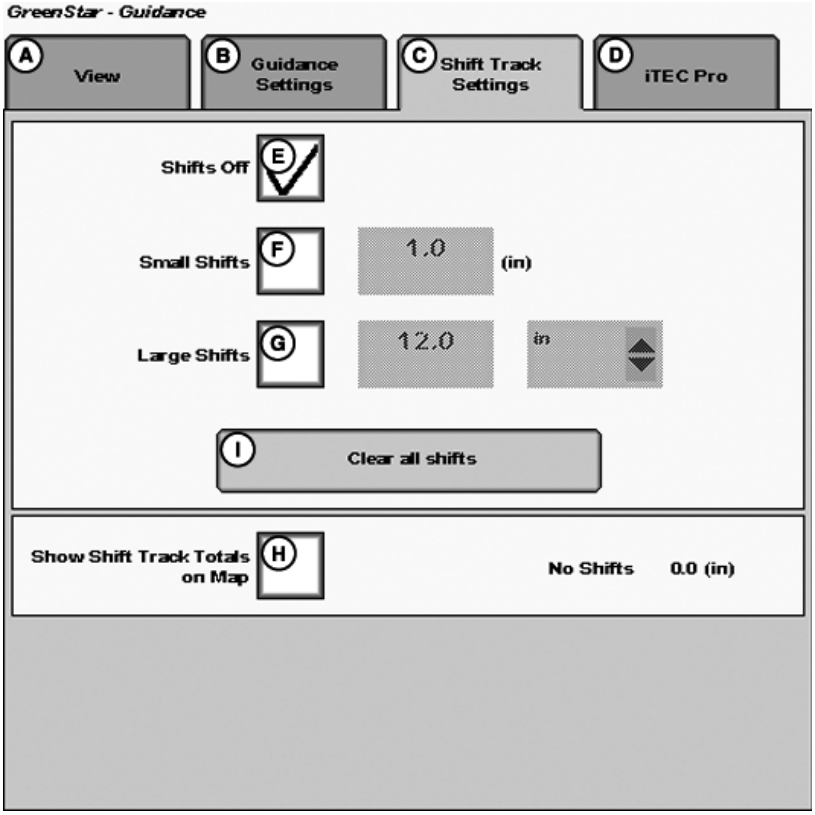
Shift Right

IMPORTANT: When using SF2 or SF1 Differential Correction (or when using RTK Quick Survey Mode) the track may drift over time or at power cycles. Shift Track can be used to compensate for GPS drift.

NOTE: RTK Absolute Base Mode is highly recommended in high accuracy applications when repeatability is needed. Only RTK Absolute Base Mode provides consistent repeatability and accuracy.

OUO6050,00021E6 -19-31AUG09-1/1

Shift Track Accumulator



PC12941 —UN—04OCT10

Shift Track Settings

A—View tab
B—Guidance Settings tab
C—Shift Track Settings
D—iTEC Pro
E—Shifts On
F—Small Shifts
G—Large Shifts
H—Show Shift Track Totals on Map
I— Clear All Shifts

If Show Shift Track Totals on Map check box (H) is selected, shift track total and direction will be shown on Guidance View map when a Shift Track button is selected.

Show Shift Track Totals on Map check box (H) is enabled only when Straight Track is the current tracking mode.

Clear all shifts will remove all shifts previously made in any operation.

CZ76372,00001A1 -19-04OCT10-1/1

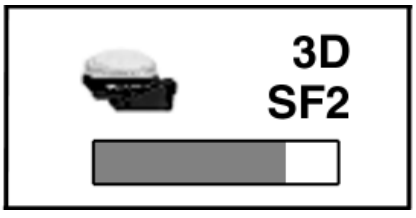
StarFire Signal Monitoring System

The GS3 alerts the operator when the current StarFire signal is not optimal for high accuracy operations. There are three alert levels (Normal, Marginal, and Poor). The levels are determined both by the StarFire Receiver's PDOP value and the number of satellites being tracked. If the StarFire receiver is being used in high accuracy operations, it is recommend that care be taken when the StarFire Signal Monitoring system indicates the current status is Marginal or Poor, as accuracy degradation may occur.

Normal

- Green Bar

PC9387 —UN—17OCT06



Normal

- Normal Operating Range
- Acceptable range for high accuracy operations
- PDOP value: 0 - 3.5
- Greater than or equal to 7 satellites being tracked

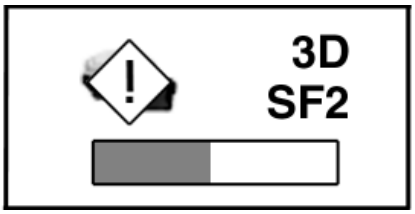
Continued on next page

CZ76372,000006B -19-09JUL10-1/3

Marginal

- Orange Bar with Permanent Alert Sign
- Marginal Operating Range
- Moderate risk of accuracy degradation
- PDOP value: 3.5 - 4.5
- Less than or equal to 6 satellites being tracked

PC9388 —UN—17OCT07



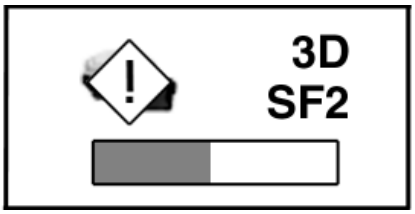
Marginal

CZ76372,000006B -19-09JUL10-2/3

Poor

- Red Bar and Flashing Alert Sign
- Poor Operating Range
- Significant risk of accuracy degradation - high accuracy operations are not advised
- PDOP value greater than 4.6
- Less than or equal to 5 satellites being tracked

PC9388 —UN—17OCT07



Poor

CZ76372,000006B -19-09JUL10-3/3

Row Finder Mode

Theory of Operation

Row Finder (Parallel Tracking Only) mode is intended for use in row crop applications where rows are not always equally spaced. Row Finder will aid the operator in finding which set of rows to enter back into the field on after setting a reference point when coming out of the previous set of rows.

Track 0 Setup

GUIDANCE SETTINGS tab >> TRACKING MODE drop-down box >> ROW FINDER.

NOTE: Row Finder can only be operated in Parallel Tracking Mode.

Track Spacing must be set for operation of this mode.

Set track spacing in EQUIPMENT softkey >> IMPLEMENT tab.

Operating Row Finder

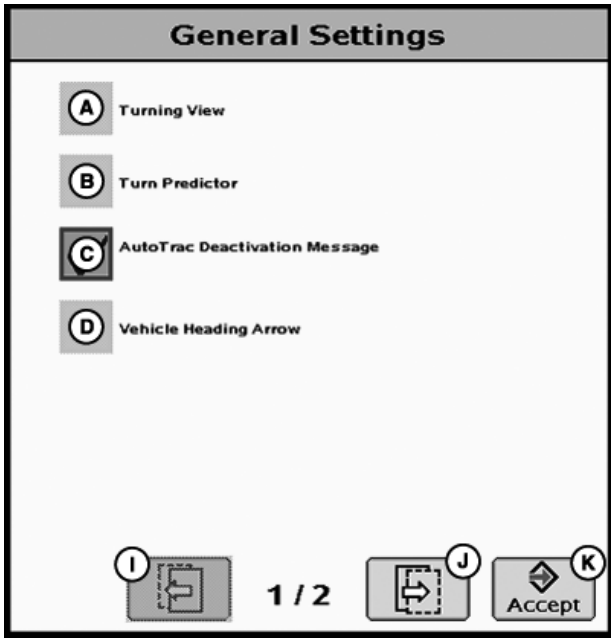
To use Row Finder press SET ROW button at end of pass before starting turn.

IMPORTANT: For optimal performance the SET ROW button must be pressed before machine begins making turn at end of pass.

Track 0 will be reset based on current track spacing, position and heading. After starting turn, turning view will guide operator into next pass.

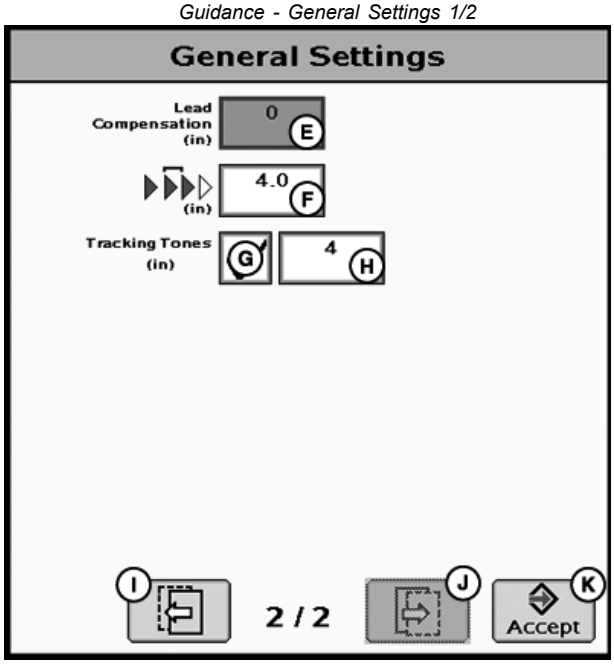
NOTE: If SET ROW button is pressed when machine is stopped, system will reset track 0 based on a 0° heading.

A—Turning View
B—Turn Predictor
C—AutoTrac Deactivation Message
D—Vehicle Heading Arrow
E—Lead Compensation
F—Off-track Error Arrow Step Size
G—Tracking Tones Enable/Disable
H—Tracking Tones Input Box
I— Previous Page
J— Next Page
K—Accept



PC12582 —UN—28APR10

Guidance - General Settings 1/2



PC12583 —UN—28APR10

Guidance - General Settings 2/2

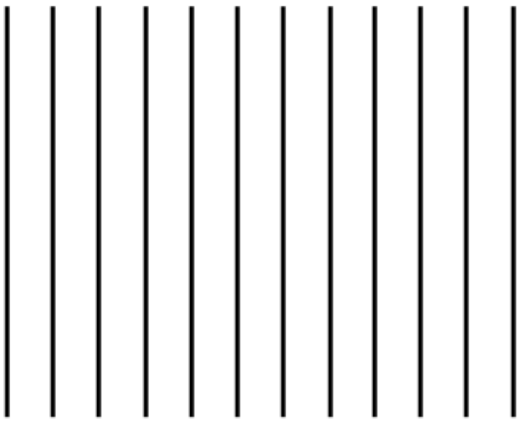
CZ76372,00001A2 -19-01OCT10-1/1

Straight Track Mode

Theory of Operation

Straight Track mode assists operator in driving straight parallel paths by using display and audible tones to alert operator when machine is off track.

Straight Track allows the operator to create an initial straight track using a variety of different track 0 setups. Once the Track 0 (reference path) has been defined, all passes for the field are generated. The generated passes can be used to operate Parallel Tracking or AutoTrac.



PC9508 —UN—24OCT06

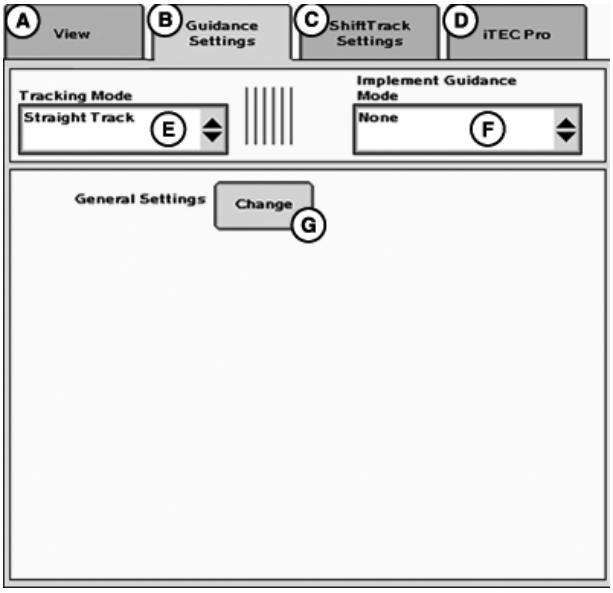
Passes are identical copies of the original pass.

CZ76372,00001A3 -19-01OCT10-1/10

Track 0 Setup

Set Tracking Mode (E) to Straight Track.

A—View
B—Guidance Settings
C—Shift Track Settings
D—iTEC Pro
E—Tracking Mode
F—Implement Guidance Mode
G—General Settings

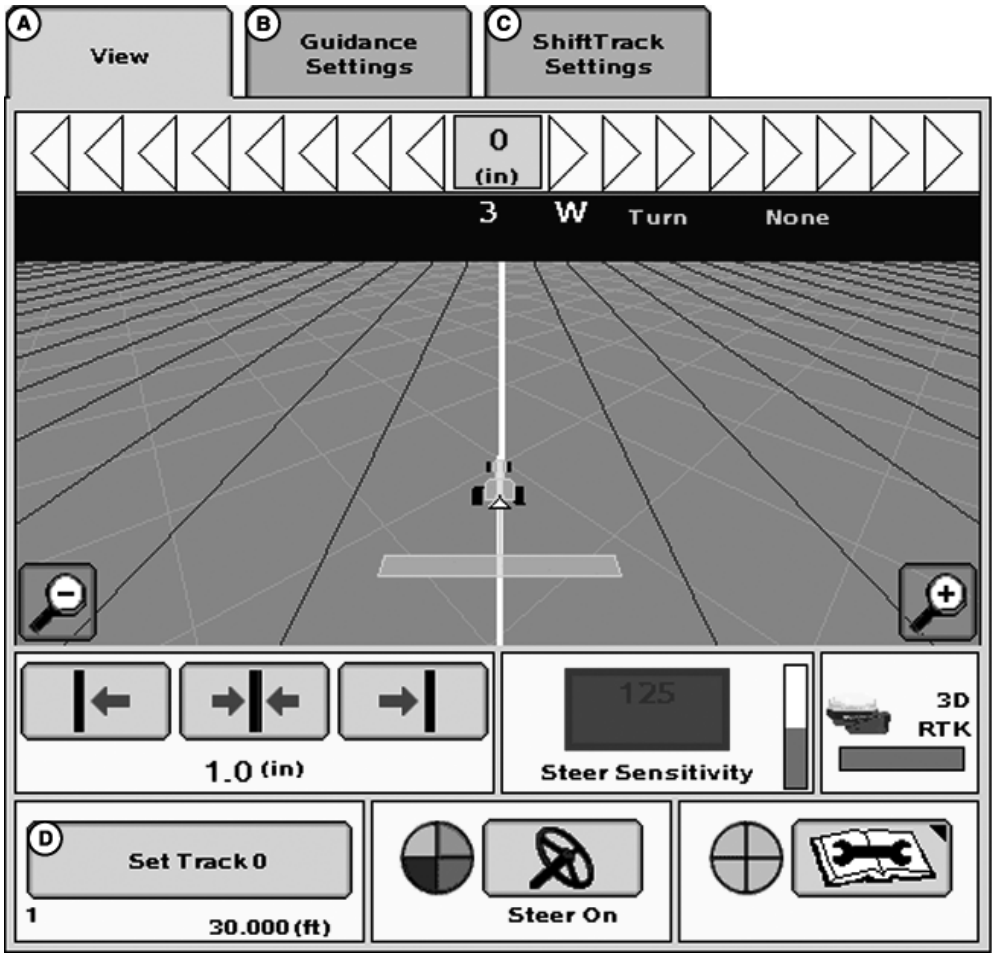


PC12584 —UN—28APR10

GreenStar 3 Pro - Guidance

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CZ76372,00001A3 -19-01OCT10-2/10



PC12585 —UN—28APR10

GreenStar 3 Pro - Guidance

A—View **B—Guidance Settings** **C—ShiftTrack Settings** **D—Set Track 0**

NOTE: Track 0 and A-B lines are two terms used interchangeably, we will use term Track 0.

Track 0 is the reference point from which all parallel passes in field are based. Use the following procedures to setup Track 0 and Track Spacing.

Creating Track 0

1. GUIDANCE SETTINGS tab—Select STRAIGHT TRACK mode.
2. VIEW tab—Press SET TRACK 0.
3. Press NEW button below the CURRENT TRACK 0 drop-down box.
4. Enter a name for Track 0 using the alpha/numeric keypad
5. Press ENTER button.
6. Select method to define Track 0 from METHOD drop-down box.
   - A + B
   - A + Heading
   - Auto B
   - Lat/Lon
   - Lat\Lon + Heading

   Methods of defining Track 0 are explained later in this section.
7. Set Track Spacing

   Track spacing can be defined two different ways:

   - Select track spacing button from Set Track 0 dialog box
     - Enter implement width
     - Enter desired track spacing

NOTE: A higher degree of precision can be achieved for track spacing when track spacing is entered in by rows instead of feet. More decimal places are used in the track spacing calculation when entered in by rows versus the three decimal places allowed when entered by feet. Select (ft)/(rows) button to change to rows.

Continued on next page

CZ76372,00001A3 -19-01OCT10-3/10

- Set track spacing from EQUIPMENT softkey >> IMPLEMENT 1 tab >> (See EQUIPMENT softkey section.)

8. Select one of the following methods, from the METHOD drop-down box, to create the A-B line.
   - A + B
   - A + Heading
   - Auto B
   - Lat/Lon
   - Lat\Lon + Heading

CZ76372,00001A3 -19-01OCT10-4/10

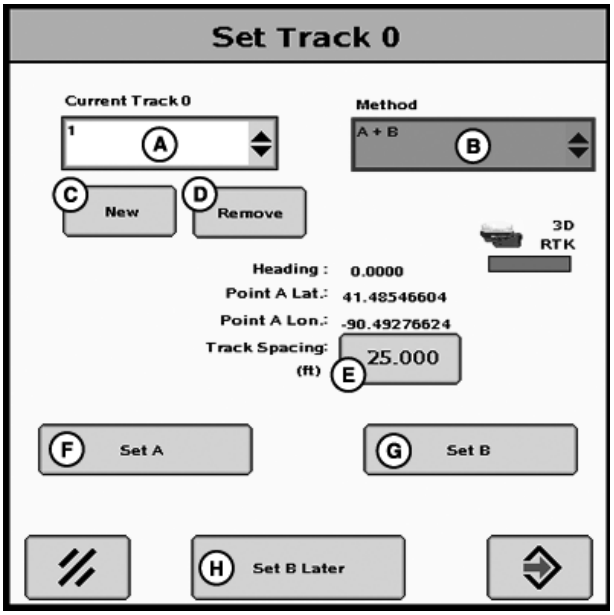
A + B

1. Drive to desired location in the field.
2. Press SET A button.
3. Drive vehicle to desired point B

NOTE: It is required to drive a longer distance than 3 m (10 ft) to set point B.

4. Press SET B button.
5. Press ENTER button.

A—Current Track 0
B—Method
C—New
D—Remove
E—Track Spacing
F—Set A
G—Set B
H—Set B Later



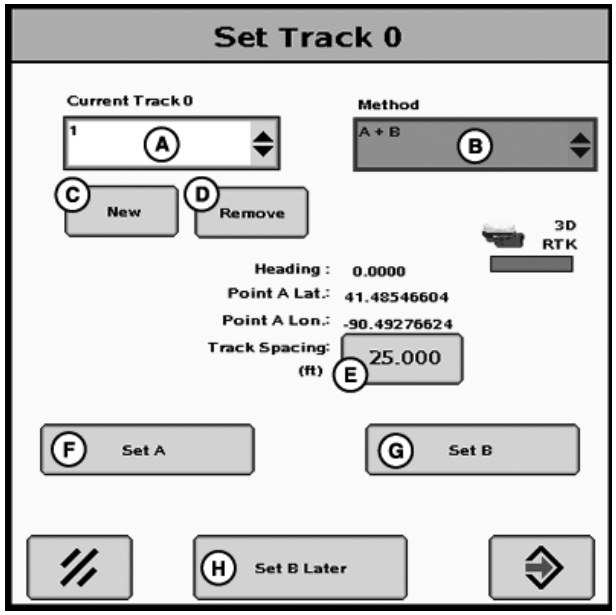
PC12226 —UN—04SEP09

Set Track 0

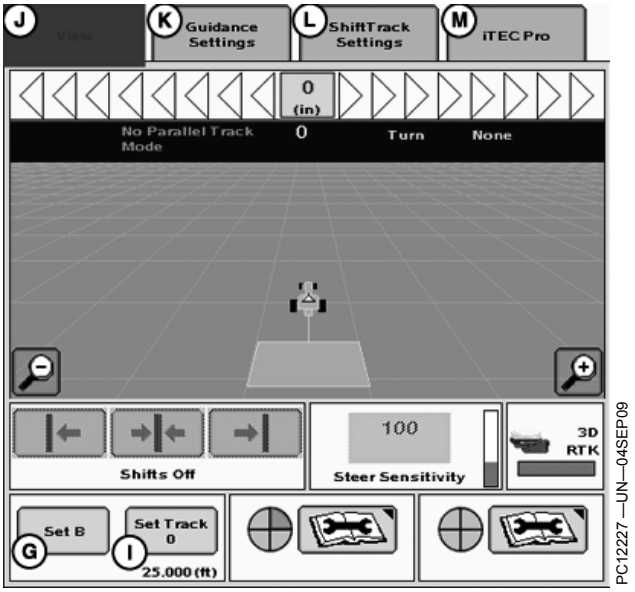
Continued on next page

CZ76372,00001A3 -19-01OCT10-5/10

Set B Later



Set Track 0



Guidance View Page

A—Current Track 0
B—Method
C—New
D—Remove
E—Track Spacing
F—Set A
G—Set B
H—Set B Later
I— Set Track 0
J— View tab
K—Guidance Settings tab
L—Shift Track Settings tab
M—iTEC Pro tab

Set B Later function allows the user to navigate away from the Set Track 0 page while creating an AB Line first by setting the “A” point on the Set Track 0 page and then choosing Set B Later. Once Set B Later button has been selected, the operator may navigate to Guidance View page to view progress as well as coverage while setting Track 0. When the operator is ready to Set B to complete the AB Line, select the Set B button on the Guidance View page.

CZ76372,00001A3 -19-01OCT10-6/10

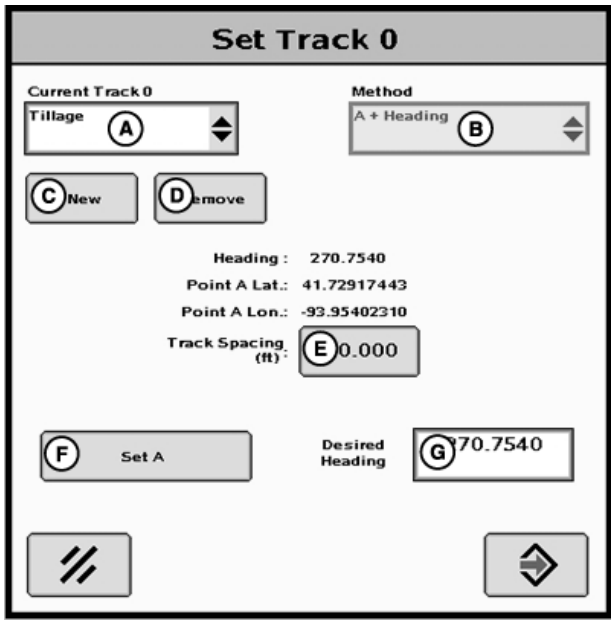
A + Heading

1. Drive to desired location in the field.
2. Press SET A button.
3. Select the HEADING input box and enter a heading with the numeric keypad.

NOTE: 0.000 indicates North, 90.000 East, 180.000 South, and 270.000 West. Save value by pressing ENTER button on keypad.

NOTE: The ENTER button will be disabled until both the Set A and Set B points have been defined.

4. Press ENTER button.



Set Track 0

A—Current Track 0
B—Method
C—New
D—Remove
E—Track Spacing
F—Set A
G—Desired Heading

Continued on next page

CZ76372,00001A3 -19-01OCT10-7/10

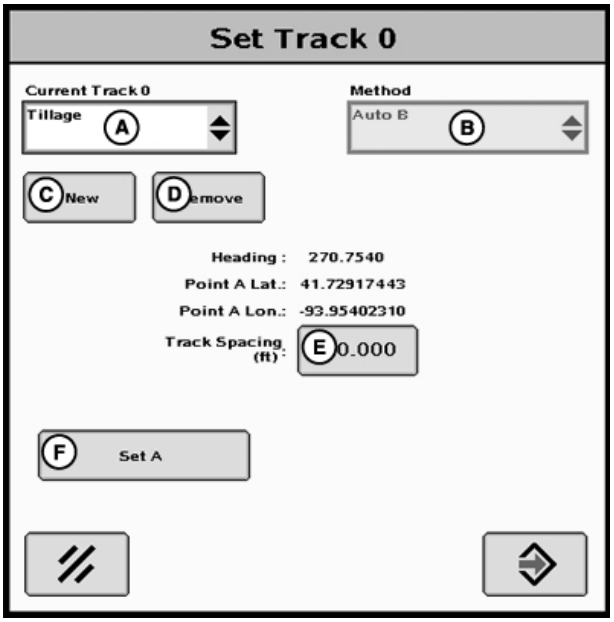
Auto B

1. Drive to desired location in the field.
2. Press SET A button.
3. Drive vehicle in desired direction across field.

NOTE: A distance of 15 m (45 ft) or longer has to be driven before point B can be defined. This method calculates point B from the last five data points taken from the 15 m (45 ft) driven and runs a best fit line through the points to determine a heading.

4. The B-point will automatically be saved after traveling 15 m (45 ft).
5. Press ENTER button.

A—Current Track 0
B—Method
C—New
D—Remove
E—Track Spacing
F—Set A



Set Track 0

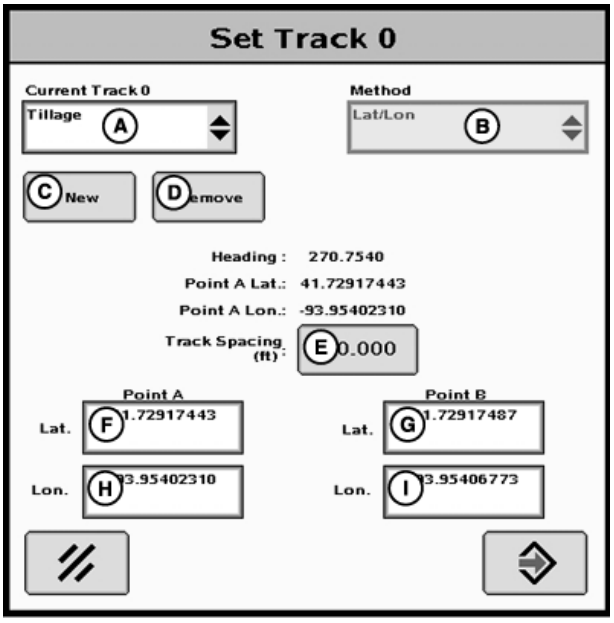
CZ76372,00001A3 -19-01OCT10-8/10

Lat/Lon

NOTE: The Latitude and Longitude coordinates have to be entered in decimal degrees.

1. Enter latitude and longitude for point A.
2. Enter latitude and longitude for point B.
3. Press ENTER button.

A—Current Track 0
B—Method
C—New
D—Remove
E—Track Spacing
F—Point A—Lat
G—Point B—Lat
H—Point A—Lon
I— Point B—Lon



Set Track 0

Continued on next page

CZ76372,00001A3 -19-01OCT10-9/10

Lat/Lon + Heading

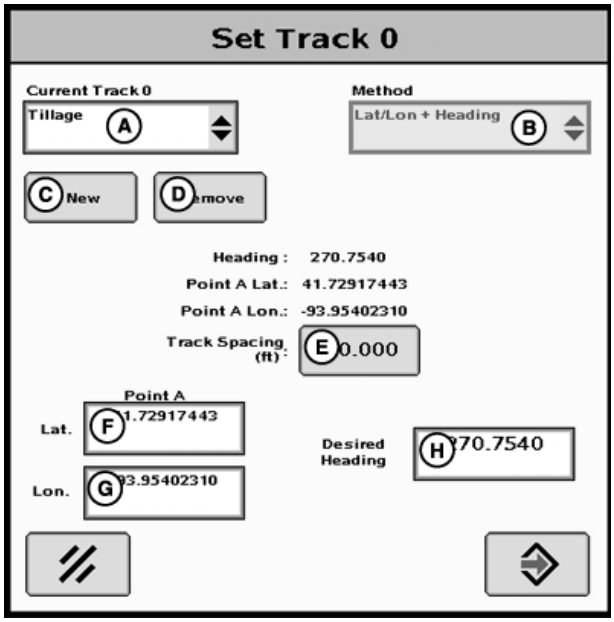
NOTE: The Latitude and Longitude coordinates must be entered in decimal degrees.

1. Drive to desired location in the field.
2. Enter Latitude coordinate for point A.
3. Enter Longitude coordinate for point A.
4. Enter desired heading.

   NOTE: 0.000 indicates North 90.000 East, 180.000 South, and 270.000 West.

5. Press enter button.

A—Current Track 0
B—Method
C—New
D—Remove
E—Track Spacing
F—Point A—Lat
G—Point A—Lon
H—Desired Heading Value

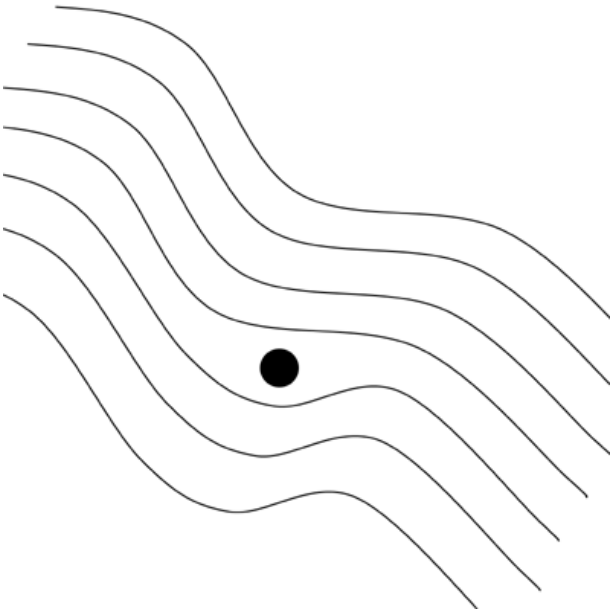


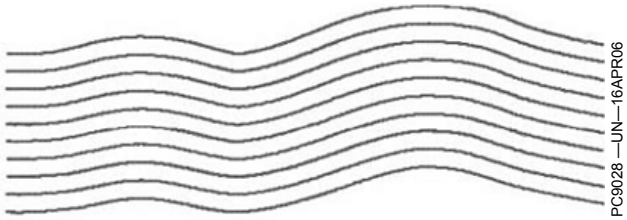
Set Track 0

CZ76372,00001A3 -19-01OCT10-10/10

Adaptive Curve Mode

Theory of Operation





The curvature of the path changes as the subsequent paths get more convex or concave.

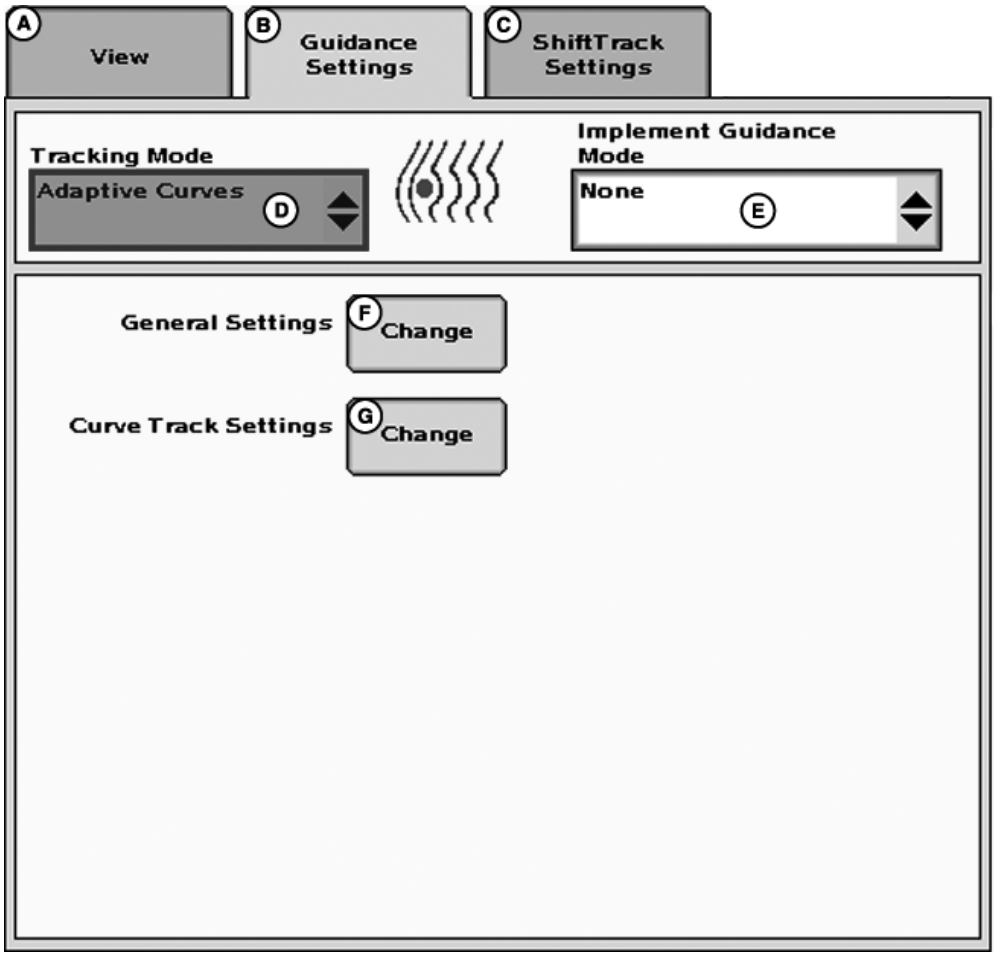
Curve Track allows the operator to record a manually driven curved path. Once the first curved pass has been recorded and machine is turned around, the operator can Parallel Track or activate AutoTrac once the propagated path appears. The vehicle will be guided along subsequent passes, based off of the previous recorded pass. Each pass is generated from the previous pass to ensure steering errors are not propagated through the entire field. The generated passes are not identical copies of the original pass. The curvature of the pass changes to maintain pass to pass accuracy. When necessary, the operator can change the curve path anywhere in the field by simply steering the machine off the propagated path.

NOTE: Skip pass is not available in Curve Track mode.

Continued on next page

CZ76372,00001A4 -19-04OCT10-1/20

Track 0 Setup



PC12586 —UN—29APR10

GreenStar 3 Pro - Guidance

A—View
B—Guidance Settings
C—Shift Track Settings
D—Tracking Mode
E—Implement Guidance Mode
F—General Settings
G—Curve Track Settings

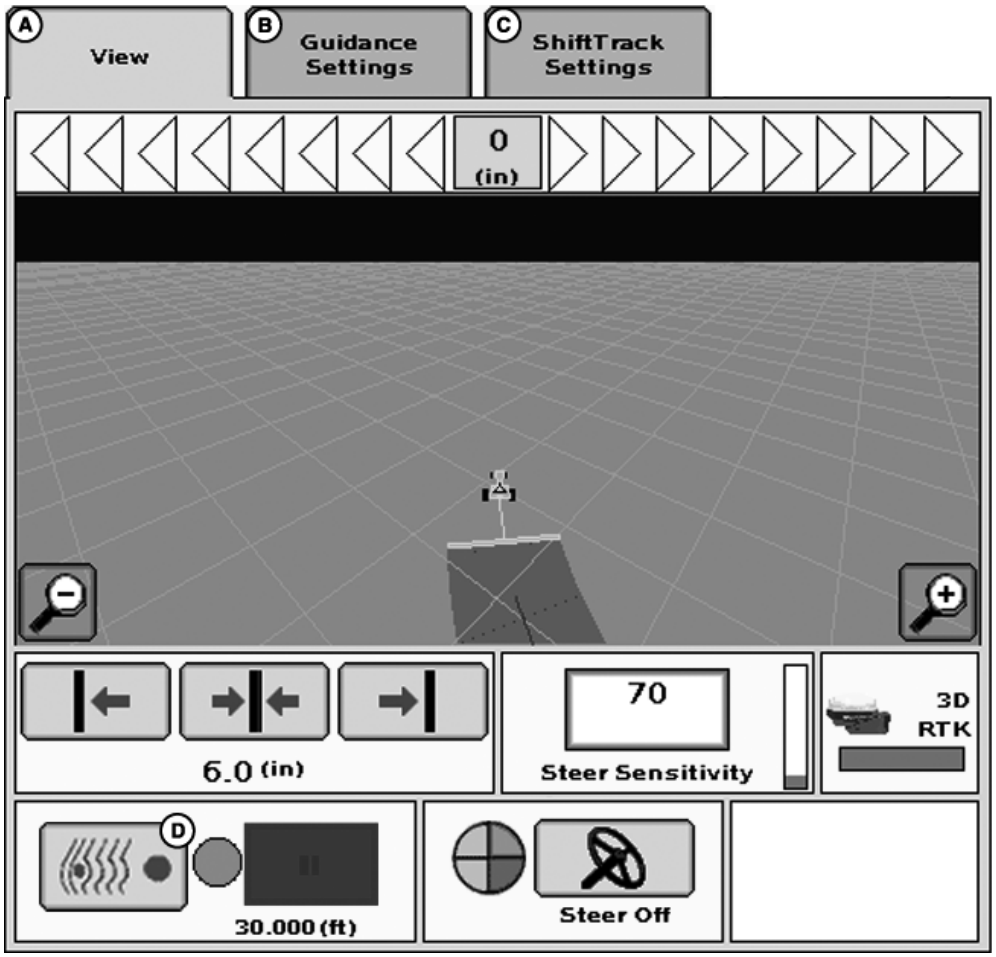
1. GUIDANCE SETTINGS tab >> TRACKING MODE drop-down box—Select ADAPTIVE CURVES.

IMPORTANT: Track Spacing must be set for operation of this mode. Set track spacing in EQUIPMENT softkey >> IMPLEMENT tab.

2. Drive to desired location in the field for start of Track 0.

Continued on next page

CZ76372,00001A4 -19-04OCT10-2/20



PC12635 —UN—09JUN10

GreenStar 3 Pro - Guidance

A—View **B—Guidance Settings** **C—ShiftTrack Settings** **D—Record/Stop button**

3. VIEW tab—Press RECORD button.

Continued on next page

CZ76372,00001A4 -19-04OCT10-3/20

4. A red light by RECORD button indicates path is being recorded.
5. Drive vehicle along desired path.
6. Turn vehicle at the end of first pass and the curve path will generate the next pass.

Saving Curve Track Data

The stored Curve Track data is assigned to a Client, Farm, Field name that is setup in the RESOURCES/CONDITIONS softkey >> RESOURCES tab.

NOTE: Setup of Client, Farm, and Field is not required for Curve Track operation but is required for the track to be saved and repeated.

The recorded Curve Track data is saved to the USB drive. This data can be transferred into APEX and then saved to the USB drive or additional USB drives for use in future field applications. The USB drive can also be taken from one 2630 to another and recalled for use.

IMPORTANT: If it is desired to have repeatability with saved Curve Track data, it is required that the initial Curve Track data and subsequent trips across the field be made using StarFire RTK (Real Time Kinematics) accuracy. RTK base station should be operating in Absolute Base mode.

PC12634 —UN—09JUN10



Curve Track Record Button

Recalling Saved Curve Data

NOTE: Recalled Curve Track data is available for the same width implement the data was recorded with. If a different implement width is used, new data must be recorded.

IMPORTANT: Make sure the USB drive contains the Curve Track data for this field.

- RESOURCES/CONDITIONS softkey >> RESOURCES tab (Select the Client, Farm, Field name to which the stored Curve Track data was assigned.)
- GUIDANCE SETTINGS tab >> TRACKING drop-down box >> ADAPTIVE CURVES
- EQUIPMENT softkey >> IMPLEMENT tab >> enter implement width/track spacing.

CZ76372,00001A4 -19-04OCT10-4/20

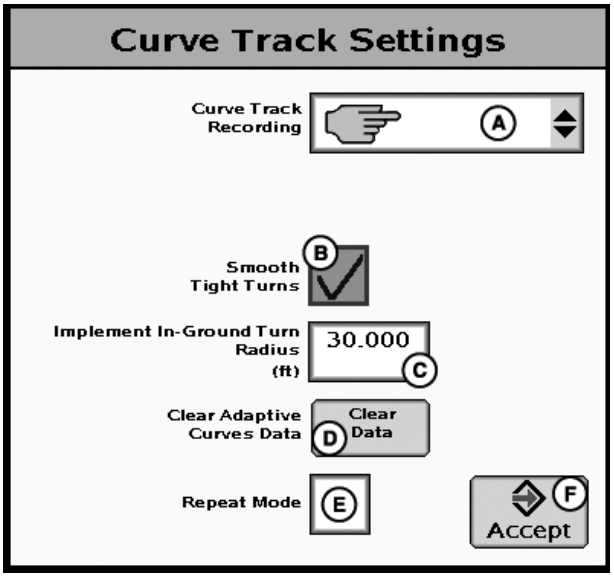
Smooth Tight Turns

GreenStar 3 Pro - GUIDANCE >> GUIDANCE SETTINGS tab >> CURVE TRACK SETTINGS CHANGE button

Smooth Tight Turns—When box is checked the system will automatically smooth a propagated path that was becoming tight.

Implement In-Ground Turning Radius (ft)—This is the value of how tight of a turn radius the implement can turn while in the ground.

A—Curve Track Recording
B—Smooth Tight Turns
C—Implement In-Ground Turn Radius
D—Clear Adaptive Curves Data
E—Repeat Mode
F—Accept

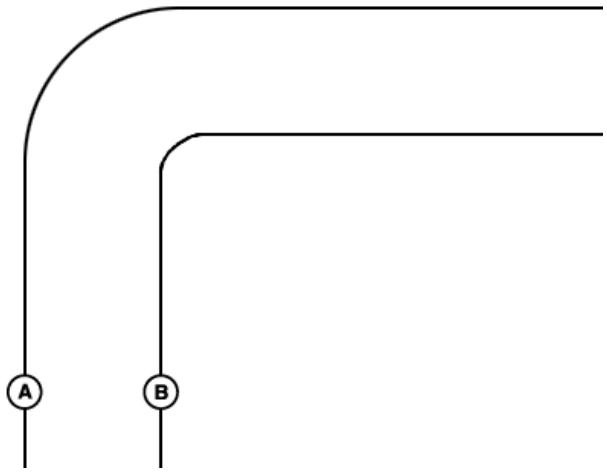


PC12588 —UN—29APR10

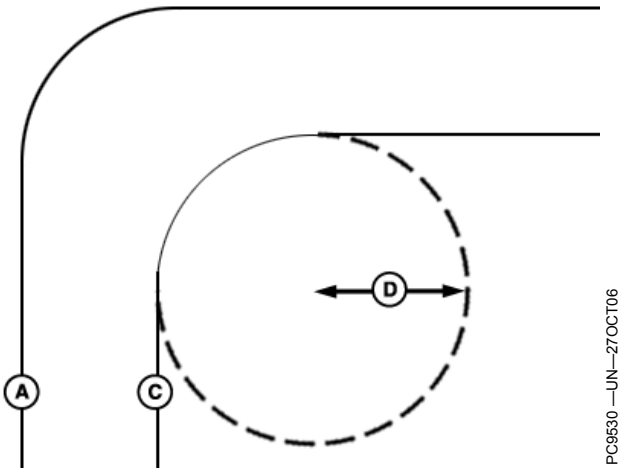
Curve Track Settings

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CZ76372,00001A4 -19-04OCT10-5/20



Smoothing Tight Turns OFF



Smoothing Tight Turns ON

A—Previous Pass

B—Next Pass—Smoothing Tight Turns Off

C—Next Pass—Smoothing Tight Turns On

D—In-Ground Turn Radius

With Smoothing Tight Turns ON the path is generated based on user's turn radius.

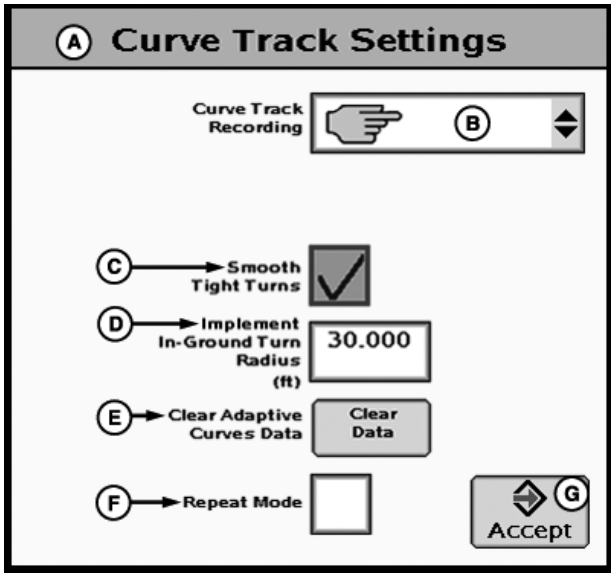
CZ76372,00001A4 -19-04OCT10-6/20

Clear Adaptive Curves Data

GreenStar 3 Pro - GUIDANCE >> GUIDANCE SETTINGS tab >> CURVE TRACK SETTINGS CHANGE button

Clear Adaptive Curves Data—If Curve Track data has been recorded previously for this field and operator does not want to use it or the internal memory is full due to stored Curve Track data, the Curve Track data can be removed from the memory.

A—Curve Track Settings
B—Curve Track Recording
C—Smooth Tight Turns
D—Implement In-Ground Turn Radius
E—Clear Adaptive Curves Data
F—Repeat Mode
G—Accept



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CZ76372,00001A4 -19-04OCT10-7/20

To removed Curve Track data from the internal memory:

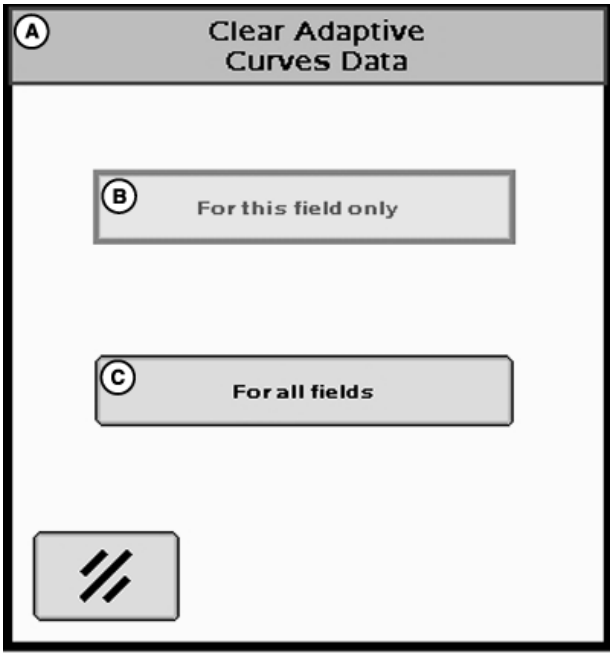
GUIDANCE SETTINGS tab >> TRACKING MODE drop-down box >> ADAPTIVE CURVES >> CURVE TRACK SETTINGS CHANGE button >> CLEAR DATA button

There are two options for clearing Curve Track data

- **For this field only**—clears Curve Track data for current field only in memory
- **For all fields**—clears Curve Track data for all fields stored in memory

NOTE: Coverage maps are retained through power cycles and will remain until the CLEAR FIELD MAP button is selected from the map settings pop-up.

NOTE: When "Field" is changed in the RESOURCES/CONDITIONS softkey, coverage will disappear from the map. Coverage will reappear by changing back to the associated field.



PC9526 —UN—26OCT06

A—Clear Adaptive Curves Data C—For all fields
B—For this field only

Continued on next page

CZ76372,00001A4 -19-04OCT10-8/20

Repeat Mode

While using adaptive curves Repeat Mode does the following:

- Repeat Mode ON repeats previous paths and disables recording
- Repeat Mode OFF enables recording and projects guidance paths off of previously recorded passes

NOTE: In repeat mode, the operator repeats previously recorded passes.

Toggle the Repeat Mode button upon entering the field.

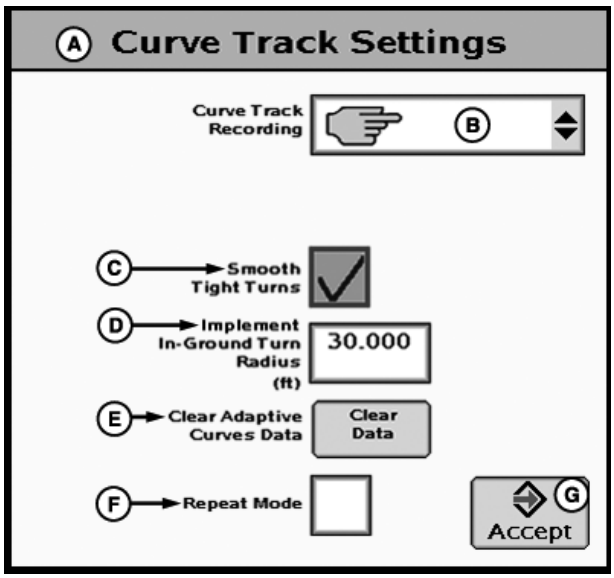
While recording a new path the Repeat Mode button should be unchecked (Off).

After turning around on the end or coming back after an obstacle where recording is off, the customer will be able to see where the line is without having to turn Recording on. Therefore Recording goes on only when you really want to be recording.

If operator would like to record new paths (i.e. Planting) Repeat Mode should be unchecked (Off).

If operator would like to follow existing paths (i.e. Spraying, Harvesting) the Repeat Mode button should be checked (On).

- The repeat mode feature decouples the recording button from the selection of path follow or path project mode.
- The operator shall select Repeat Mode as OFF (path project mode) when recording a path for the first time.
- Repeat Mode shall be selected ON (path follow mode) when following previously recorded paths.



PC12626 —UN—02JUN10

A—Curve Track Settings
B—Curve Track Recording
C—Smooth Tight Turns
D—Implement In-Ground Turn Radius
E—Clear Adaptive Curves Data
F—Repeat Mode
G—Accept

- This function affects the search algorithm. Repeat Mode Off is +- 0.5-1.5 Track Spacing. Repeat Mode On is +- 0.5 Track Spacing.
- The default is OFF. If Repeat Mode is ON, the recording button is disabled.

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CZ76372,00001A4 -19-04OCT10-9/20

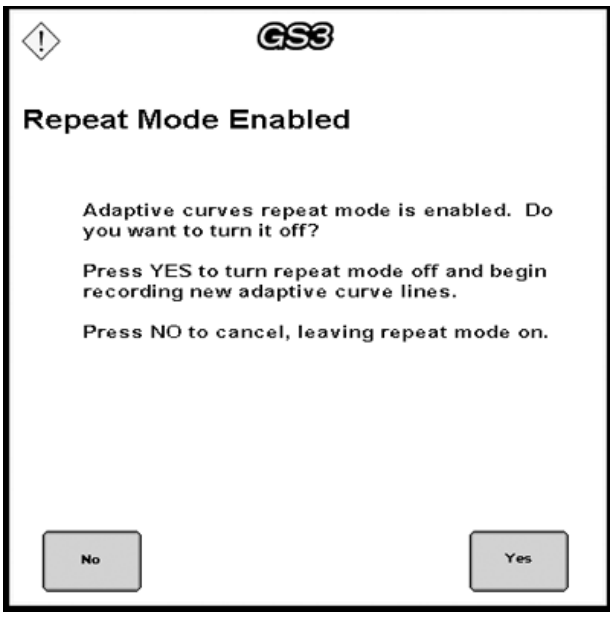
Repeat Mode Enabled

Adaptive curves repeat mode is enabled. Do you want to turn it off?

Press Yes to turn repeat mode off and begin recording new adaptive curve lines.

Press No to cancel , leaving repeat mode on.

NOTE: The Repeat Mode Enabled alarm is displayed when repeat mode for adaptive curves is checked and the user tries to record new adaptive curves.


GS3
Repeat Mode Enabled
Adaptive curves repeat mode is enabled. Do you want to turn it off?
Press YES to turn repeat mode off and begin recording new adaptive curve lines.
Press NO to cancel, leaving repeat mode on.
No
Yes

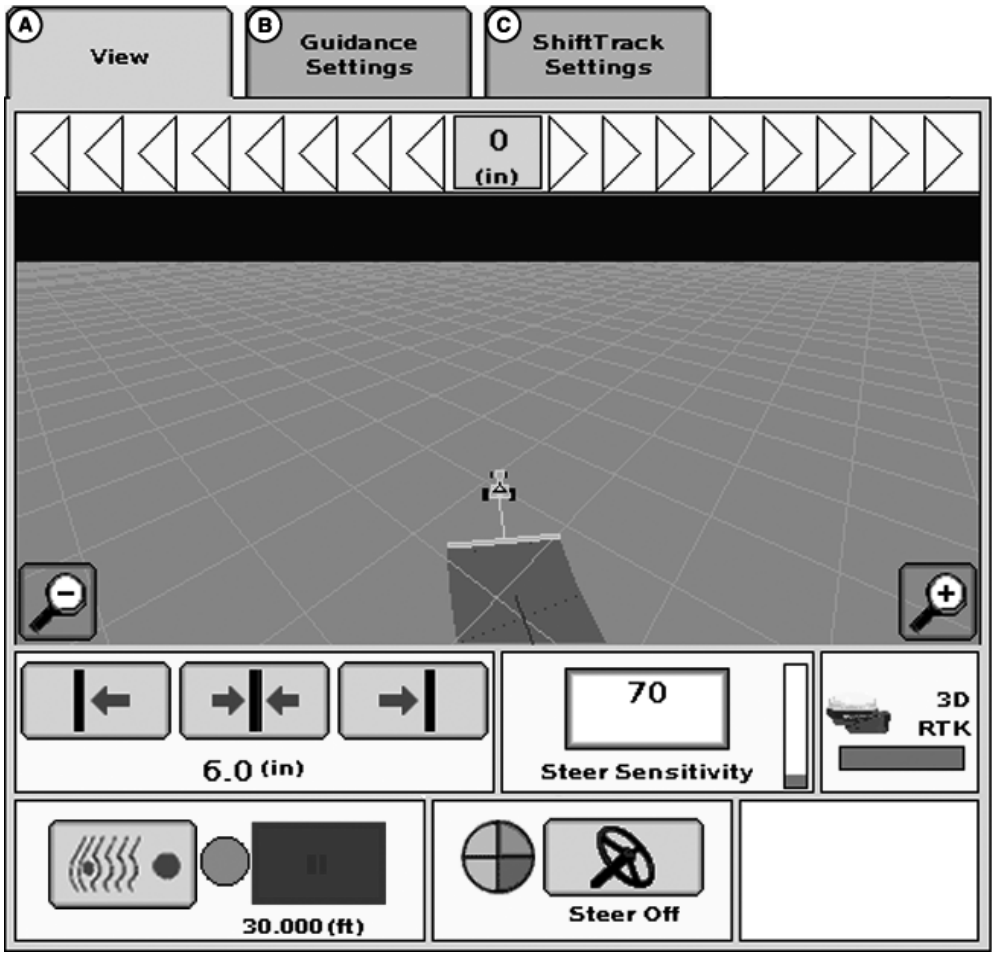
PC12923 —UN—27SEP10

Repeat Mode Enabled

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CZ76372,00001A4 -19-04OCT10-10/20

Operating Curve Track



PC12636 —UN—09JUN10

GreenStar 3 Pro - Guidance

IMPORTANT: RTK Absolute Base Mode is required in high accuracy applications when repeatability is needed. Only RTK Absolute Base Mode provides consistent repeatability and accuracy in Curve Track.

To start using Curve Track:

GUIDANCE softkey >> VIEW tab — select RECORD button

To start using Adaptive Curves GUIDANCE softkey >> VIEW tab — select RECORD button

IMPORTANT: Recording has to be on to record initial pass and to propagate and record all subsequent passes.

Recording only needs to be turned off if machine is driven outside of normal field pattern (i.e. refill sprayer, planter) or if customer does not want to record turns at end of field or in headlands. Turning recording on/off must be done manually. Recording can be left on when turning at end of each pass if desired.

PC12634 —UN—09JUN10



Curve Track Record Button

A—View
B—Guidance Settings
C—ShiftTrack Settings
D—Record button, Recording Circle, Pause button

Drive initial pass.

NOTE: No navigation line will appear until end of pass is reached and machine is turned around. Once machine is turned around, system will begin searching through recorded line segments to determine path to guide on. System locates a line segment that is parallel and within 1/2 to 1-1/2 track spacings. The predicted path will appear from which the operator can navigate from.

Continued on next page

Shift Track will only shift the recorded line segments in one direction based off of the orientation of the line segment you are currently on.

CZ76372,00001A4 -19-04OCT10-12/20

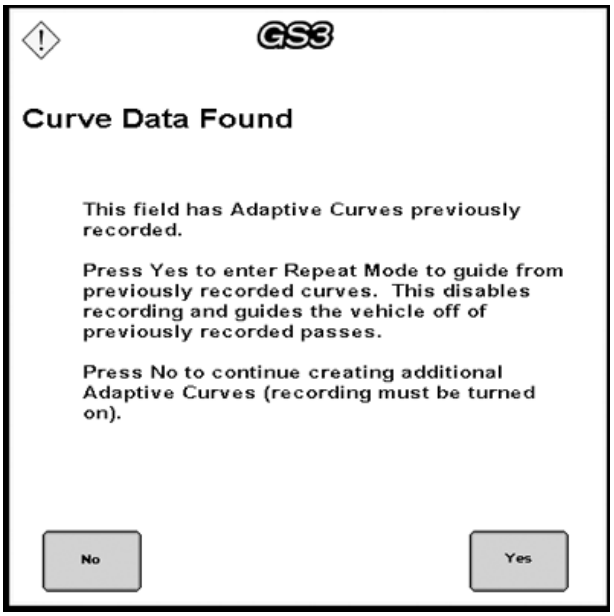
Curve Data Found

This field has Adaptive Curves Previously recorded.

Press Yes to enter Repeat Mode to guide from previously recorded curves. This disables recording and guides the vehicle off of previously recorded passes.

Press No to continue creating additional Adaptive Curves (recording must be turned on).

NOTE: The Curve Data Found message is displayed when the operator changes fields and existing curve data is found for that field.


GS3
Curve Data Found
This field has Adaptive Curves previously recorded.
Press Yes to enter Repeat Mode to guide from previously recorded curves. This disables recording and guides the vehicle off of previously recorded passes.
Press No to continue creating additional Adaptive Curves (recording must be turned on).
No
Yes

PC12924 —UN—27SEP10

Curve Data Found

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CZ76372,00001A4 -19-04OCT10-13/20

Record and Repeat

This feature allows the operator to recall saved Adaptive Curve Track data (paths) for a field and guide on the recorded passes without recording again.

NOTE: Track spacing must be the same for all passes.

The operator can also manually drive an entire field or defined pattern with record button on and then repeat the recorded paths.

Example:

- Record each pass in a field that had drip tape installed without an automatic guidance system with varying guess rows.
- Follow beds from previous season to record all passes in field.

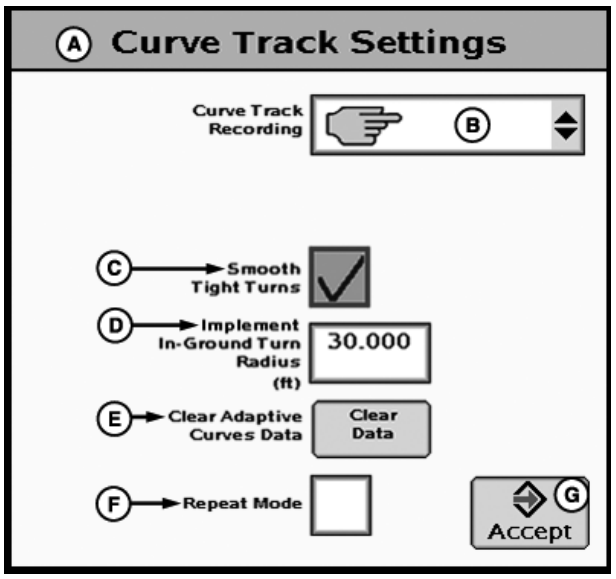
IMPORTANT: RTK Absolute Base Mode is required in high accuracy applications when repeatability is needed. Only RTK Absolute Base Mode provides consistent repeatability and accuracy in Curve Track.

Using Record and Repeat

- RESOURCES/CONDITIONS softkey >> RESOURCES tab (Select the Client, Farm, Field name to which the stored Curve Track data was assigned.)
- GUIDANCE SETTINGS tab >> TRACKING MODE drop-down box >> ADAPTIVE CURVES >> CURVE TRACK SETTINGS >> CHANGE
- EQUIPMENT softkey >> IMPLEMENT tab >> enter implement width/track spacing.

Drive into field where first pass is located.

When the path the machine is to guide off of is highlighted, press resume switch (AutoTrac only) and machine will automatically steer on that pass. In Parallel Tracking (manual guidance) the operator will be guided off of the highlighted pass.



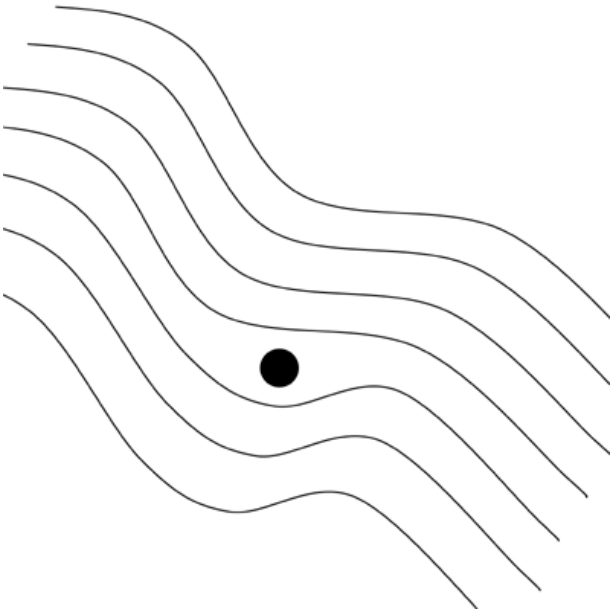
PC12626 —UN—02JUN10

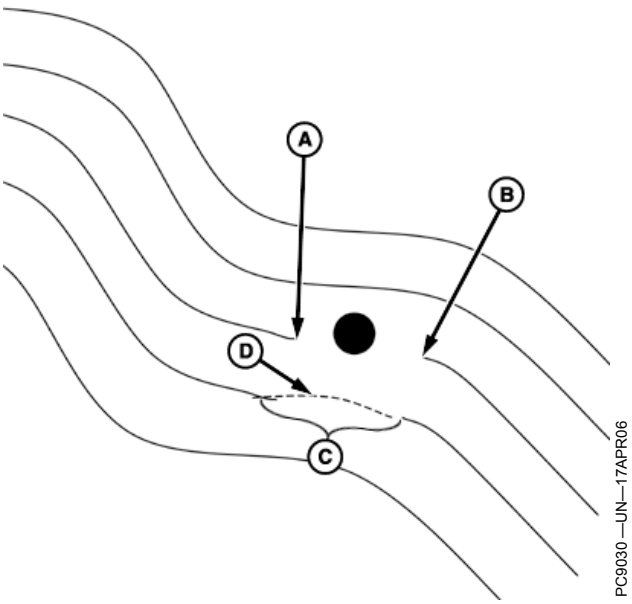
A—Curve Track Settings
B—Curve Track Recording
C—Smooth Tight Turns
D—Implement In-Ground Turn Radius
E—Clear Adaptive Curves Data
F—Repeat Mode
G—Accept

IMPORTANT: Do not turn the Record button on. Record and Repeat does not require the Record button be on unless the operator is redefining a path.

Continued on next page

Guiding around Obstacles in Field





A—Turned Recording OFF **B—Turned Recording ON** **C—Gap Results in Next Path** **D—Manually Driven to Reestablish Path**

When operating Curve Track in a field and an obstacle is encountered such as a well head, telephone pole, or power line, the operator must drive around these obstacles.

Recording ON: If recording is left on while driving around an obstacle that deviation to the propagated path will be recorded and become a part of the path. On the next pass when you approach the area in the field the propagated path for the pass that the machine is on will have incorporated that deviation and the machine will steer along that deviation. To straighten out that deviation, the operator must take over manual steering of the machine and straighten out that deviation. Once the operator has driven past the deviation in the field and reacquired the intended path the resume switch may be engaged and AutoTrac will take over machine steering.

Recording OFF: If recording is turned off when the obstacle is approached and steered around and then recording turned back on once the obstacle has been navigated around and AutoTrac activated to finish the pass, there will be a gap in the recorded path where the obstacle is. On the next path when the machine approaches the gap the operator must take over manual steering of machine and navigate through the gap. Once the gap has been navigated and the propagated path is reacquired, AutoTrac can be activated and the gap will not appear in subsequent passes.

Continued on next page

CZ76372,00001A4 -19-04OCT10-15/20

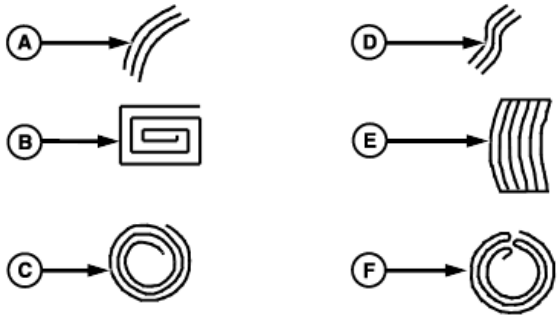
Guidance Patterns

The method of searching all line segments allows an operator to drive and be guided along a variety of field patterns:

- Simple Curve
- S-Curve
- Boxed
- Race Track
- Spiral
- Circle

Shift Track Operation

The use of shift track is not recommended when using Curve Track. Shift track will not compensate for inherent GPS drift in Curve Track mode.



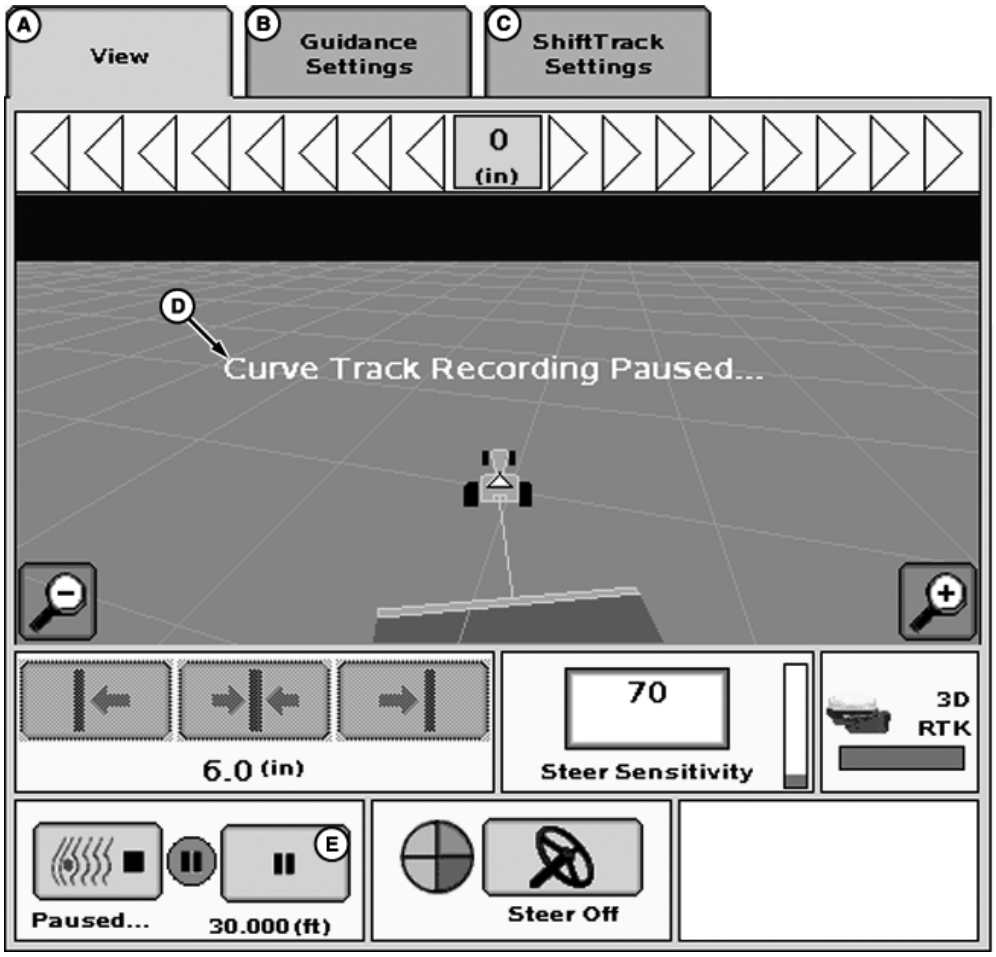
PC9032 —UN—17APR06

A—Simple Curve
B—Boxed
C—Spiral
D—S-Curve
E—Race Track
F—Circle

Continued on next page

CZ76372,00001A4 -19-04OCT10-16/20

Pause Recording Feature



PC12589 —UN—29APR10

Curve Track Pause Recording Feature

A—View
B—Guidance Settings
C—ShiftTrack Settings
D—Curve Track Recording Paused . . .
E—Pause Button

The PAUSE button (E) is located next to the curve track recording button.

This feature allows the user to PAUSE the recording of a vehicle's path. When recording is UN-PAUSED, curve track will resume recording and connect the space between where it was PAUSED and UN-PAUSED with a straight line. This can be helpful when there is a long straight section of path or when navigating around obstacles.

NOTE: The longest bridge segment (line segment created between PAUSED and UN-PAUSED) that can be created is a distance of 0.8 km ((0.5 miles) (2,640ft). If the distance between the points is greater than 0.8 km (0.5 miles) (2,640 ft) the line segment will not connect resulting in a gap in the path.

Operating Pause Recording

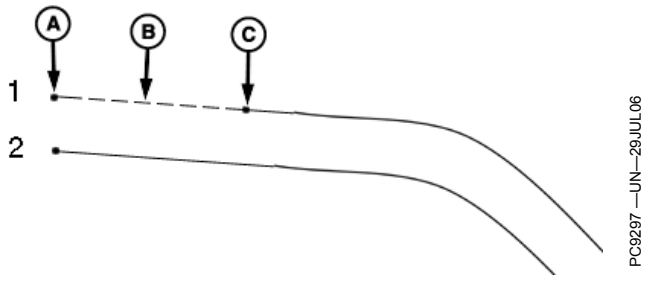
When the pause button is selected, "Paused" is displayed below the RECORD button. To un-pause select the PAUSE button again.

Continued on next page

Recording a Straight Path within a Curved Path

Straight Path starts from Field Edge:

1. Drive the vehicle to the designated starting spot in the field. Turn curve track recording on and press the PAUSE button.
2. “Paused” is displayed below the button.
3. Start driving the first pass. When the spot in the field is reached where the pass starts to curve, select the pause button again and curve track will start recording again.
4. Drive to the end of the first pass.
5. The straight path (B) will be created when the recording is un-paused.



Straight Path starting from the Field’s Edge

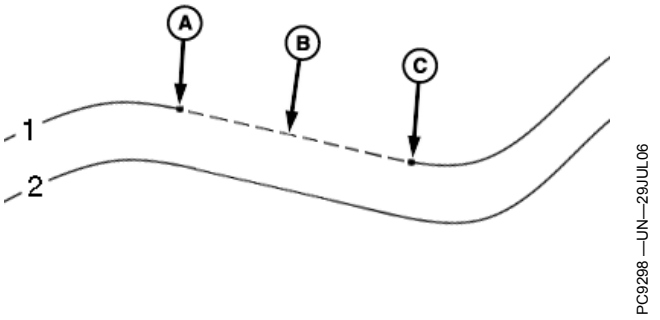
A—Recording Turned ON then PAUSED
B—Bridge segment is generated to connect points
C—Recording UN-PAUSED

CZ76372,00001A4 -19-04OCT10-18/20

Recording a Straight Path within a Curved Path

Straight Path is between Two Curves:

1. Drive the vehicle to the designated starting spot in the field and turn curve track recording on.
2. Start driving the curve path.
3. When you want to start creating a straight path, select the pause button.
4. Recording indicator will turn black. “Paused” is displayed below the button.
5. Drive the straight path.
6. When you are at the point where the straight path should end, select the pause button again and curve track will start recording again.
7. The straight path (B) will be created when the recording is un-paused.



Straight Path between Two Curves

A—Recording PAUSED
B—Bridge segment is generated to connect points
C—Recording UN-PAUSED

Continued on next page

CZ76372,00001A4 -19-04OCT10-19/20

Guiding around Obstacles in Field

Recording PAUSED:

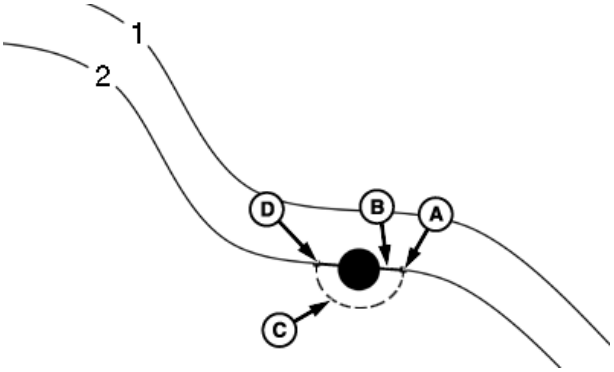
If recording is PAUSED when the obstacle is approached and steered around and then recording is UN-PAUSED once the obstacle has been navigated around, a straight line segment will be connected between the points where curve track recording was PAUSED and where it was UN-PAUSED.

The next pass will be propagated without a deviation or a gap around the obstacle as occurs when recording is left on or turned off when going around an obstacle.

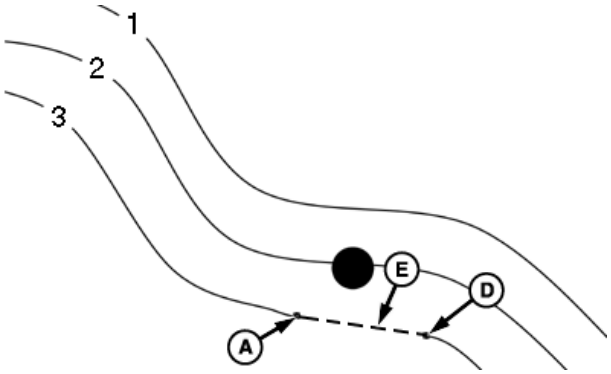
Additionally, if the vehicle is navigating on the curve path, when curve track is PAUSED, the curve path will:

- Remain displayed on the screen to aid in getting lined up once you drive around the obstacle. If the path disappears from the display due to exceeding the 40% track spacing rule, manually line the vehicle up on the other side of the obstacle and the line will appear once the previous pass is located again
- AutoTrac can be activated while PAUSED to get the vehicle lined up on the path before UN-PAUSED curve track recording.

IMPORTANT: Curve track recording MUST be UN-PAUSED once the obstacle is navigated, so curve track continues to record the driven path to be able to propagate the next pass.



PC9284 —UN—29JUL06



PC9285 —UN—08AUG06

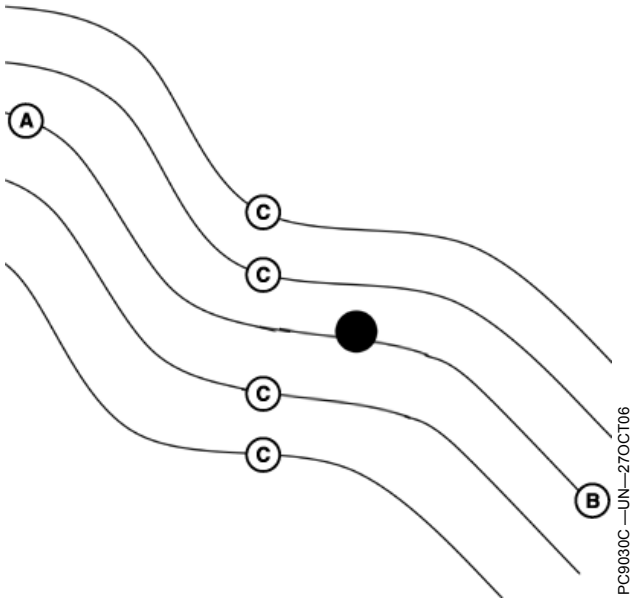
PASS 2

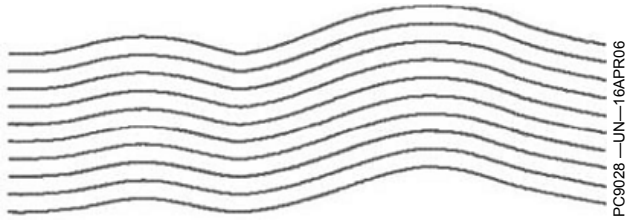
A—Recording PAUSED
B—Bridge segment is generated to connect two points
C—Tractor path not recorded while paused
D—Recording UN-PAUSED
E—Path recorded without the tractors deviated path.

CZ76372,00001A4 -19-04OCT10-20/20

AB Curve Mode

Theory of Operation





The curvature of the path changes as the subsequent paths get more convex or concave.

A—Start Recording of AB Curve (Track 0) **B—Stop Recording of AB Curve (Track 0)** **C—Paths Generated from Track 0**

AB Curves allows an operator to drive a curved line in the field with two end points (beginning and end) and the passes parallel to the track in either direction will be generated based on the original driven track. Each pass is generated from the original driven pass to ensure that steering errors are not propagated through the entire field. The passes are not identical copies of the original pass. The curvature of the pass changes to maintain pass to pass error.

Once the AB curve (Track 0) is recorded 5 tracks will be generated (Track 0 and 2 passes on either side of Track 0). When the vehicle drives past the 2nd track from Track 0, ten additional tracks will be generated in that direction. The system will continue to generate additional passes when the vehicle drives past the last pass displayed on the screen.

NOTE: Skip pass is available in AB Curves mode

Generating AB Curve Path Information As the system generates the initial passes after recording Track 0 or when generating additional passes the text “Generating AB Curve” will be displayed on the perspective view. During this time you will not be able to track off of any paths.

AB Curve Generation Limits The initially recorded AB curve must be at least 10 feet in length to be a valid AB Curve to use for guidance. The vehicle must be within 400 meters (0.25 miles) of where Track 0 was recorded for the system to start generating curve paths. If the vehicle is at this outer limit it may take several minutes to generate a path that shows up on the screen. During this time “Generating AB Curve” will be displayed on the screen.

Straight Line Extensions AB Curve paths are generated with a 91 m (300 ft) straight line extension attached to the end of the actual recorded path.

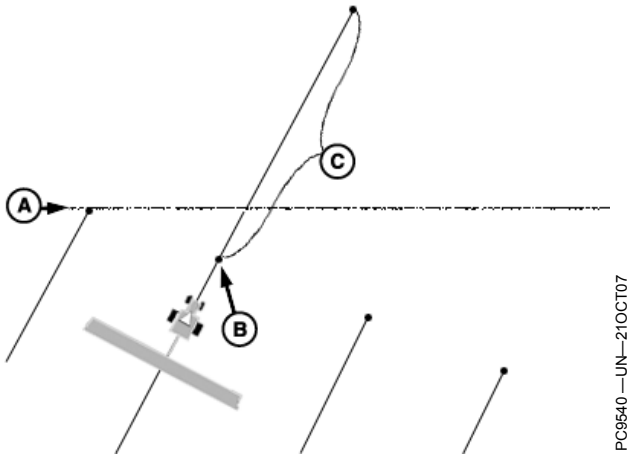
Multiple AB Curves in a field A field can contain multiple AB Curve paths. Each AB curve for a field must be recorded and uniquely named.

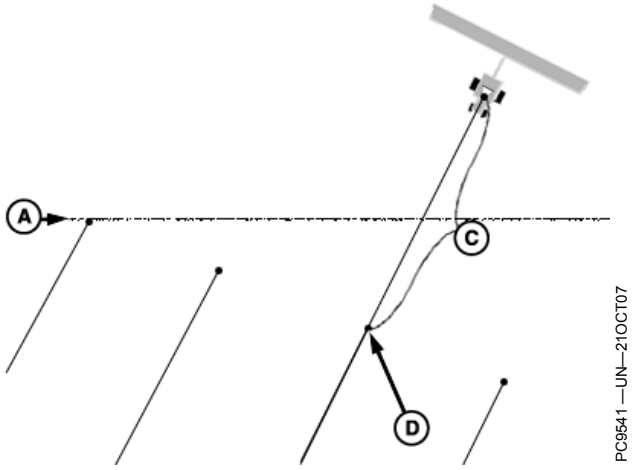
Track Numbering Tracks will be numbered to allow for skip pass and to aid in finding passes. The direction label (N,S,E, or W) is defined by the heading determined between the first and last point in the curve.

Continued on next page

CZ76372,00001A5 -19-01OCT10-1/13

Straight Line Extensions





A—Headland Boundary, may or may not be defined by the GS3 system .(shown for reference only)

B—End of Projected A/B Curve

C—91 m (300 ft) Straight Line Extension

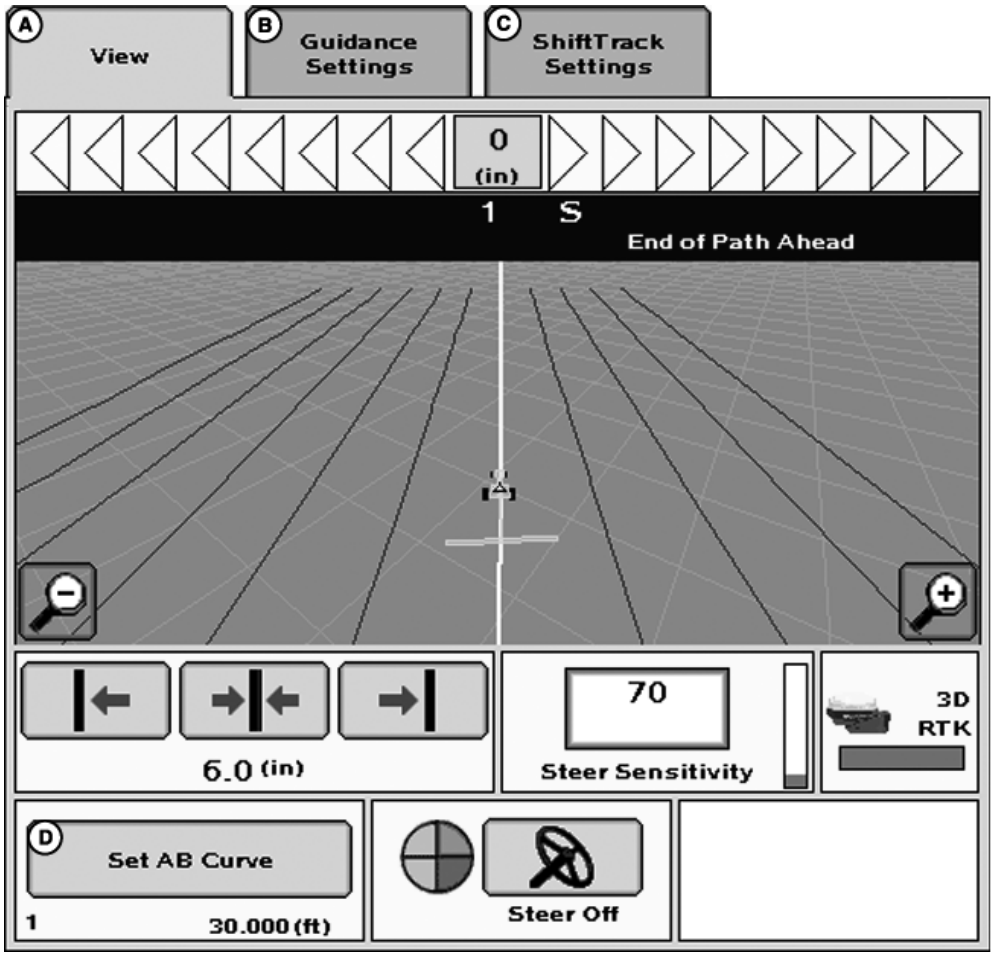
D—Beginning of Projected A/B Curve

Straight Line Extensions A/B Curve paths are generated with a 91 m (300 ft) straight line extension attached to the end of the actual recorded path. This straight line extension allows the operator to get the vehicle back on the path prior to entering the field. It may also aid in continuing the guidance path when the recorded path gets shorter than the field boundary.

Continued on next page

CZ76372,00001A5 -19-01OCT10-2/13

Setup



PC12590 —UN—29APR10

GreenStar 3 Pro - Guidance Screen

A—View **B—Guidance Settings** **C—ShiftTrack Settings** **D—Set AB Curve**

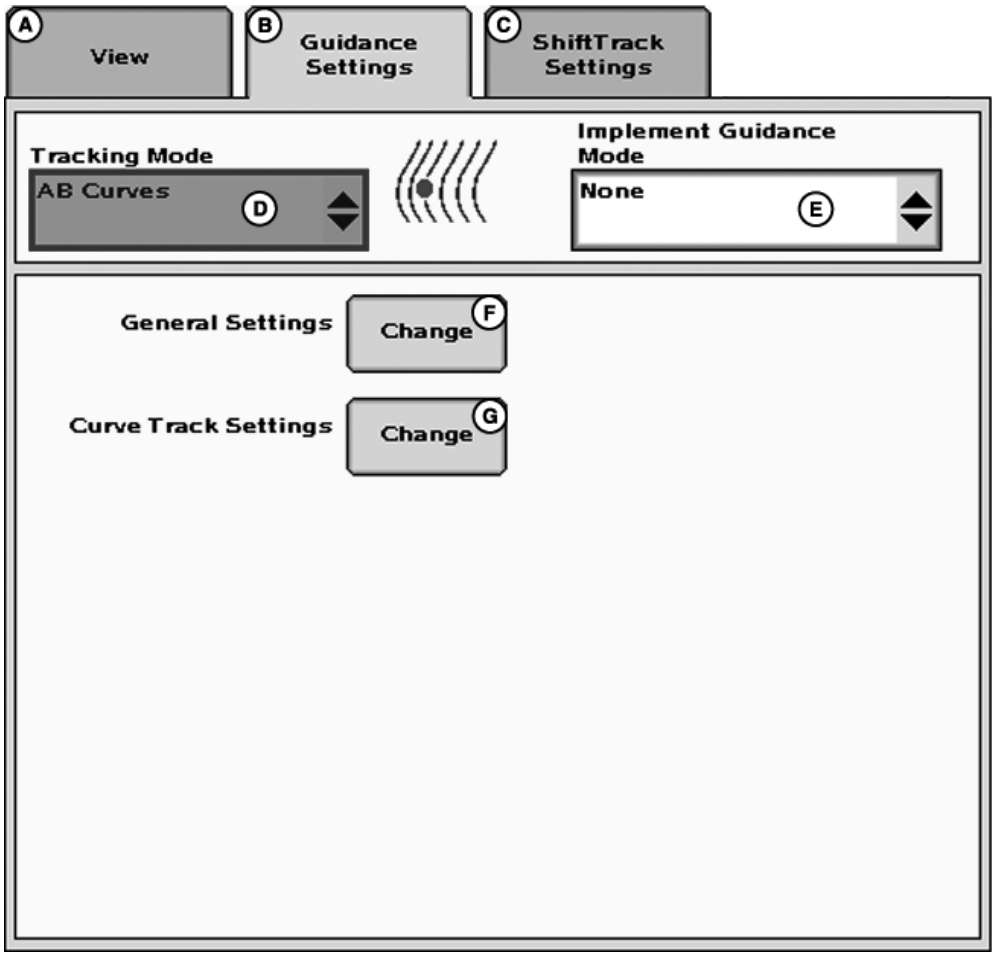
- GUIDANCE SETTINGS tab >> TRACKING MODE drop-down box >> AB CURVE

IMPORTANT: AB Curve must be selected in order to operate AB Curve Guidance.

Continued on next page

CZ76372,00001A5 -19-01OCT10-3/13

Creating an AB Curve



PC12591 —UN—29APR10

GreenStar 3 Pro - Guidance

A—View
B—Guidance Settings
C—ShiftTrack Settings
D—Tracking Mode
E—Implement Guidance Mode
F—General Settings button
G—Curve Track Settings button

Creating AB Curves

NOTE: Track 0 and AB Curve are two terms used interchangeably, we will use term Track 0.

Track 0 is the reference point from which subsequent curve passes in the field are based. Use the following procedure to setup Track 0 and Track Spacing.

NOTE: Multiple AB Curves may be recorded per field. They will need to be named and recorded separately.

1. Guidance View tab >> Set AB Curve button (lower left corner)
2. Press NEW button below the Current AB Curve drop-down box.
3. Enter a name for Track 0 using the alpha/numeric keypad.
4. Press Enter button
5. 5. Set Track Spacing
   a. Press the track spacing entry box
   b. Enter implement width
   c. Enter desired track spacing

NOTE: A higher degree of precision can be achieved for track spacing when track spacing is entered in by rows instead of feet. More decimal places are used in the track spacing calculation when entered in rows versus the three decimal places allowed when entered by feet. Select (ft/rows) button to change to rows.

6. Press the AB Curve record button to start recording.
7. Drive the initial pass.
8. Press the AB Curve record button to stop recording.
9. Press the Enter button

Continued on next page

CZ76372,00001A5 -19-01OCT10-4/13

NOTE: If GPS signal is lost while recording, recording is stopped and the AB curve that was recorded to that point will be saved. If the AB Curve is not what the operator intended, it may be deleted by using the REMOVE button.

CZ76372,00001A5 -19-01OCT10-5/13

Pause Recording Feature

This feature allows the user to PAUSE the recording of a vehicle's path. When recording is UN-PAUSED, curve track will resume recording and connect the space between where it was PAUSED and UN-PAUSED with a straight line. This can be helpful when there is a long straight section of path or when navigating around obstacles.

NOTE: The longest bridge segment (line segment created between PAUSED and UN-PAUSED) that can be created is a distance of 0.5 miles (2,640ft). If the distance between the points is greater than 0.8 km (0.5 miles) (2,640 ft) the line segment will not connect resulting in a gap in the path.

PC12637 —UN—09JUN10



AB Curves Pause button

Operating Pause Recording

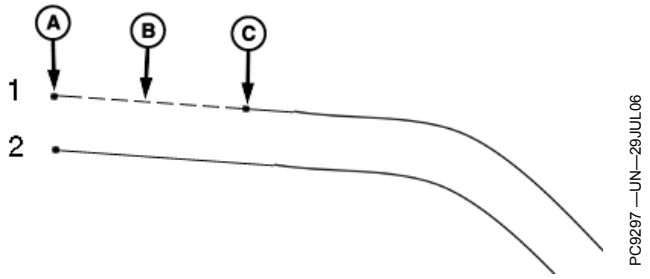
When the pause button is selected, "Paused" is displayed below the RECORD button. To un-pause select the PAUSE button again.

CZ76372,00001A5 -19-01OCT10-6/13

Recording a Straight Path within a Curved Path

Straight Path starts from Field Edge:

1. Drive the vehicle to the designated starting spot in the field. Turn curve track recording on and press the PAUSE button.
2. "Paused" is displayed below the button.
3. Start driving the first pass. When the spot in the field is reached where the pass starts to curve, select the pause button again and curve track will start recording again.
4. Drive to the end of the first pass.
5. The straight path (B) will be created when the recording is un-paused.



Straight Path starting from the Field's Edge

A—Recording Turned ON then PAUSED
B—Bridge segment is generated to connect points
C—Recording UN-PAUSED

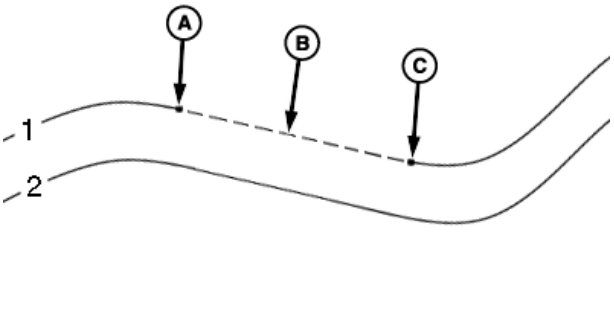
Continued on next page

CZ76372,00001A5 -19-01OCT10-7/13

Recording a Straight Path within a Curved Path

Straight Path is between Two Curves:

1. Drive the vehicle to the designated starting spot in the field and turn curve track recording on.
2. Start driving the curve path.
3. When you want to start creating a straight path, select the pause button.
4. Recording indicator will turn black. “Paused” is displayed below the button.
5. Drive the straight path.
6. When you are at the point where the straight path should end, select the pause button again and curve track will start recording again.
7. The straight path (B) will be created when the recording is un-paused.



PC9298 —UN—29JUL06

Straight Path between Two Curves

A—Recording PAUSED
B—Bridge segment is generated to connect points
C—Recording UN-PAUSED

CZ76372,00001A5 -19-01OCT10-8/13

Saving AB Curves Data

The stored AB Curve Track data is assigned to a Client, Farm, Field name that is setup in the RESOURCES/CONDITIONS softkey >> RESOURCES tab.

NOTE: Setup of Client, Farm, and Field is not required for Curve Track operation but is required for the track to be saved and repeated.

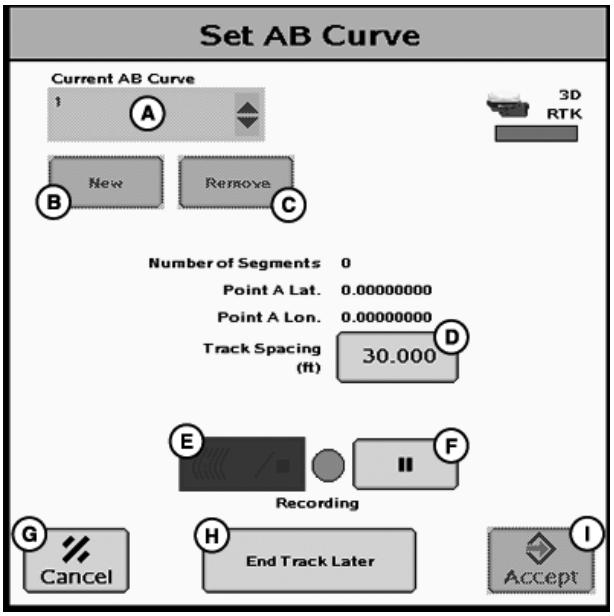
The recorded AB Curve Track data is saved to the USB drive. This data can be transferred into desktop software and saved to the USB drive or additional USB drives for use in future field applications. The USB drive can also be taken from one GS3 display to another and recall the AB Curve Track data for use.

Recalling Saved AB Curve Data

IMPORTANT: Make sure the USB drive contains the Curve Track data for this field.

- RESOURCES/CONDITIONS softkey >> RESOURCES tab (Select the Client, Farm, Field name to which the stored Curve Track data was assigned.)
- GUIDANCE SETTINGS tab >> TRACKING drop-down box >>AB CURVE TRACK

1. Select the AB Curve Name from the Current AB Curve drop down box.
2. Press Enter button



PC12592 —UN—29APR10

Set AB Curve

A—Current AB Curve
B—New
C—Remove
D—Track Spacing
E—Record/Stop Button
F—Pause Button
G—Cancel Button
H—End Track Later Button
I— Accept Button

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CZ76372,00001A5 -19-01OCT10-9/13

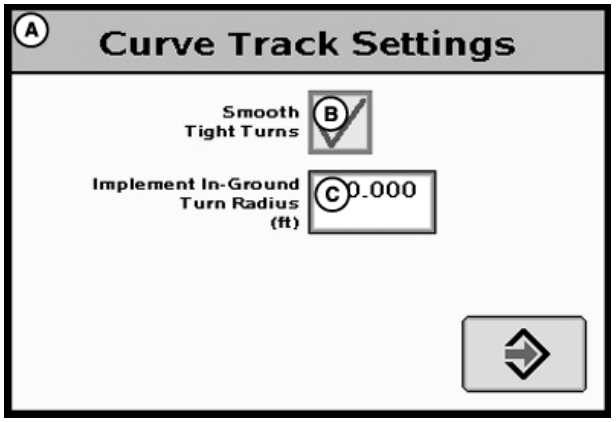
Smooth Tight Turns

GreenStar 3 Pro - GUIDANCE >> GUIDANCE SETTINGS tab >> CURVE TRACK SETTINGS CHANGE button

Curve Track Settings

Smooth Tight Turns—When box is checked the system will automatically smooth a propagated path that was becoming tight.

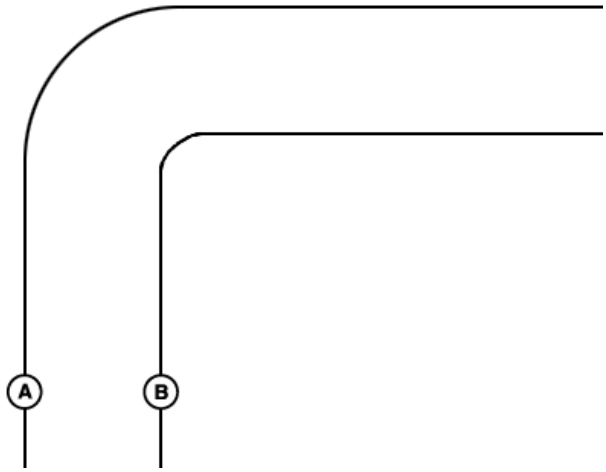
Implement In-Ground Turning Radius (ft)—This is the value of how tight of a turn radius the implement can turn while in the ground.



PC9527 —UN—26OCT06

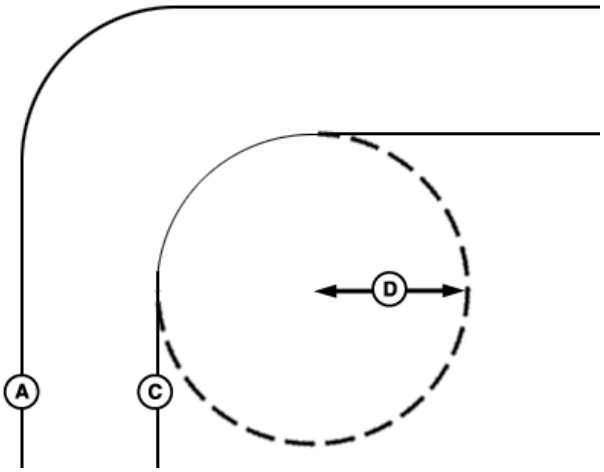
A—Curve Track Settings
B—Smooth Tight Turns
C—Implement In-Ground Turn Radius (ft)

CZ76372,00001A5 -19-01OCT10-10/13



PC9529 —UN—27OCT06

Smoothing Tight Turns OFF



PC9530 —UN—27OCT06

Smoothing Tight Turns ON

A—Previous Pass
B—Next Pass—Smoothing Tight Turns Off
C—Next Pass—Smoothing Tight Turns On
D—In-Ground Turn Radius

With Smoothing Tight Turns On the path is generated based on user's turn radius.

Continued on next page

CZ76372,00001A5 -19-01OCT10-11/13

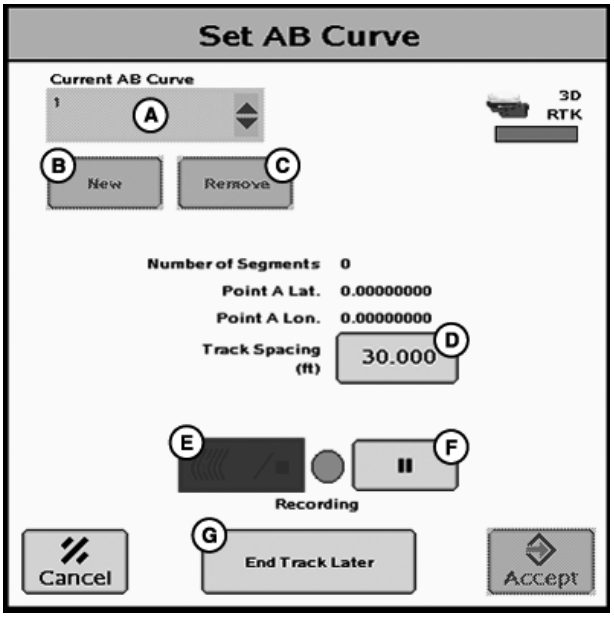
Remove AB Curve Track Data

GUIDANCE VIEW tab >> SET AB CURVE button

To remove curve track data:

1. Select the AB Curve name that is to be deleted from the Current AB Curve drop-down box.
2. Press the remove button.
3. Confirm the removal of the AB Curve.

A—Current AB Curve
B—New Button
C—Remove Button
D—Track Spacing Button
E—Record/Stop Button
F—Pause Button
G—End Track Later Button

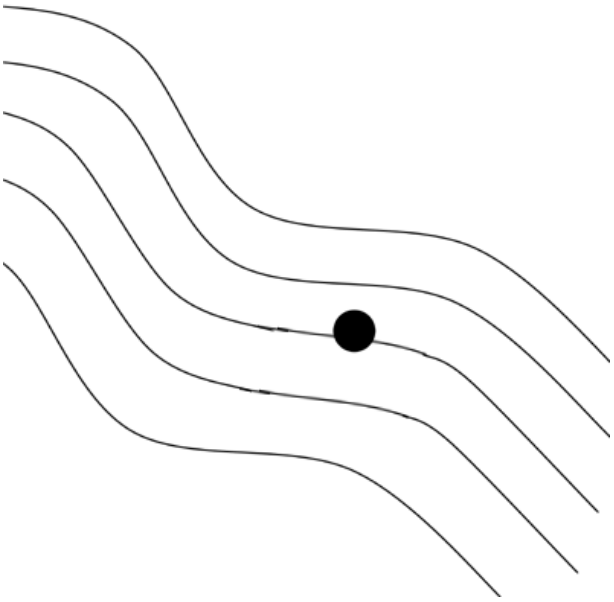


Set AB Curve

CZ76372,00001A5 -19-01OCT10-12/13

Guiding around Obstacles in a Field

As the operator manually drives around the obstacle the AB curve path will remain on the screen. The original path will not be altered.

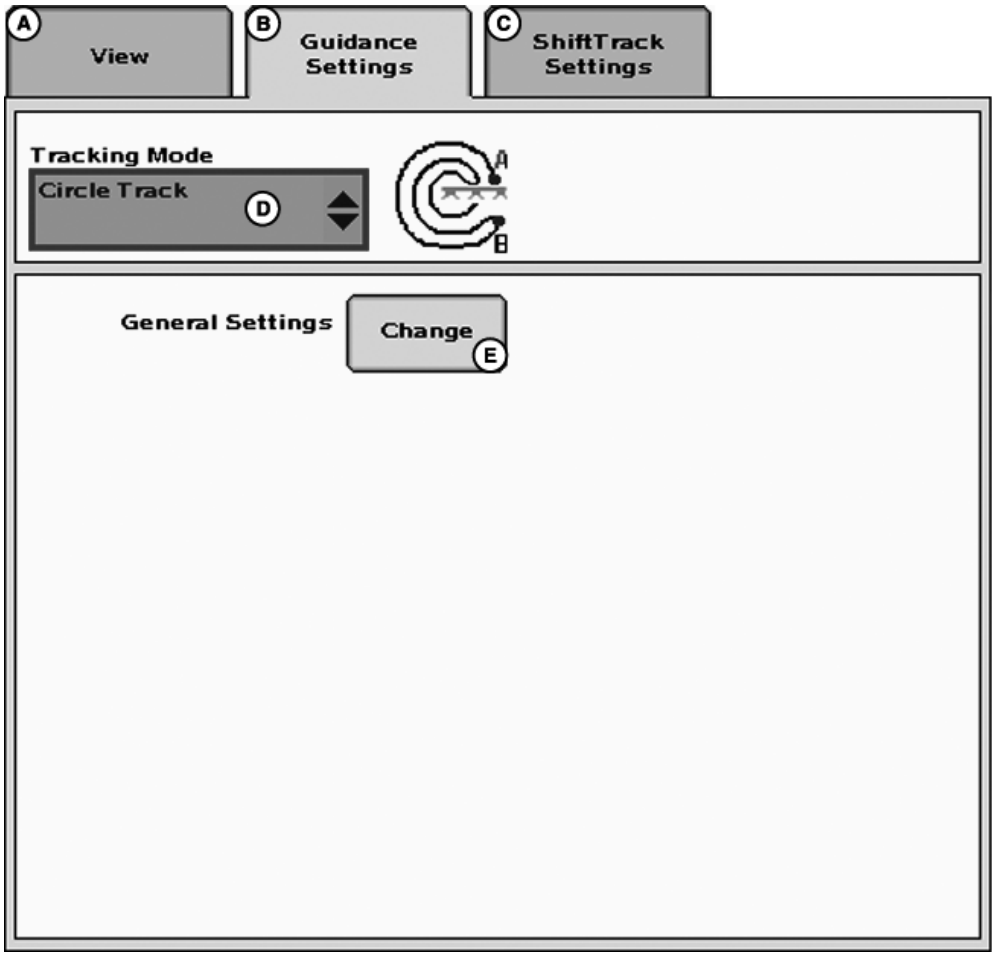


Original Path will not be Altered

CZ76372,00001A5 -19-01OCT10-13/13

Circle Track Mode

Track 0 Setup



PC12593 —UN—29APR10

GreenStar 3 Pro - Guidance

A—View
B—Guidance Settings
C—ShiftTrack Settings
D—Tracking Mode
E—General Settings

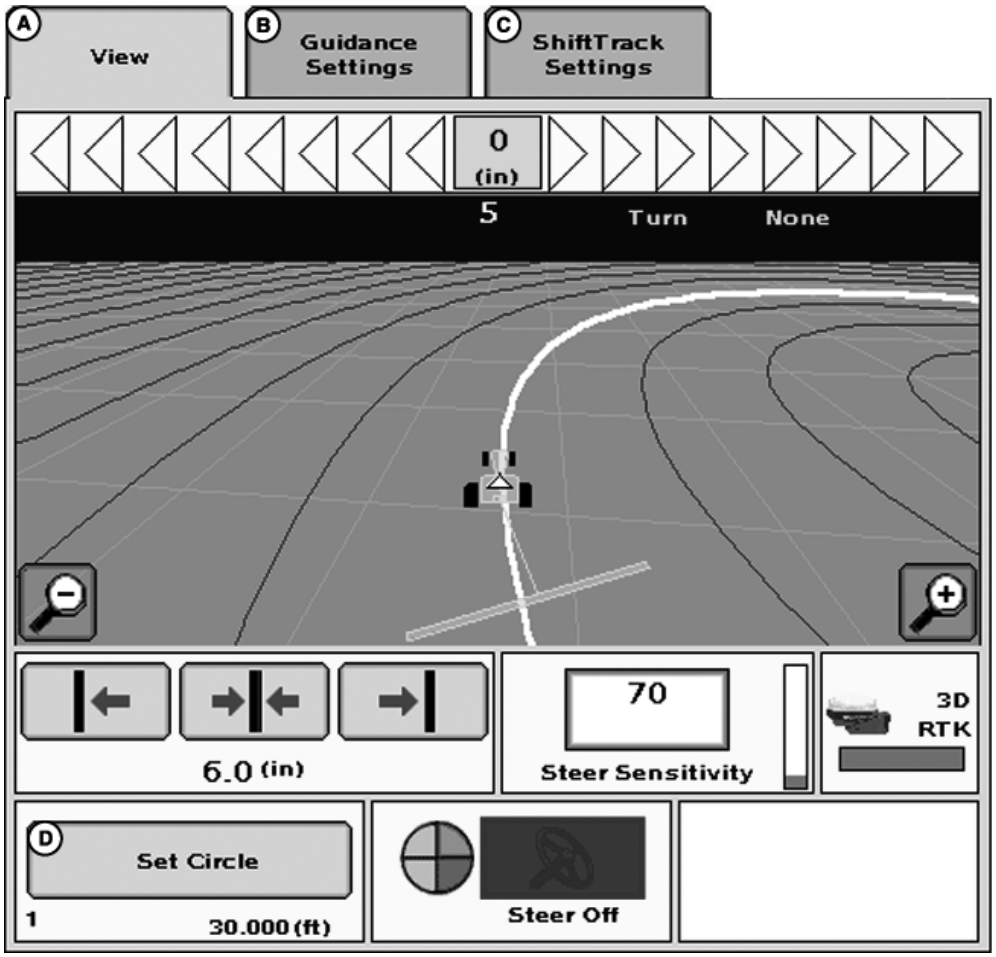
NOTE: Circle Track Mode is available in Parallel Tracking Mode without a Pivot Pro activation. To AutoTrac in Circle Track mode requires both an AutoTrac and Pivot Pro activation. Pivot Pro activation is North American Only.

GUIDANCE SETTINGS tab >> TRACKING MODE drop-down box >> CIRCLE TRACK.

Circle Center and Track Spacing must be set for operation of this mode.

Continued on next page

CZ76372,00001A9 -19-01OCT10-1/4



PC12594 —UN—29APR10

GreenStar 3 Pro - Guidance

A—View **B—Guidance Settings** **C—ShiftTrack Settings** **D—Set Circle button**

1. Press SET CIRCLE button (D).
2. Select NEW button below the CURRENT CIRCLE drop-down box.
3. Enter name using the alpha/numeric keypad.
4. Select ENTER button.
5. Select method to define Circle Center from METHOD drop-down box.

   - Drive Circle
   - Lat/Lon

   Methods of defining Circle center are explained later in this section.
6. Set Track Spacing

   Track spacing can be defined two different ways:

   - Select track spacing button from Set Circle dialog box
     - Enter implement width
     - Enter desired track spacing

   NOTE: A higher degree of precision can be achieved for track spacing when track spacing is entered in by rows instead of feet. More decimal places are used in the track spacing calculation when entered in by rows versus the three decimal places allowed when entered by feet. Select (ft)/(rows) button to change to rows.

   - Set track spacing from EQUIPMENT softkey >> IMPLEMENT 1 tab >> CHANGES WIDTH (See EQUIPMENT softkey section.)
7. Use one of the following methods to define the circle center:

   - Drive Circle
   - Lat/Lon

Drive Circle

1. Drive machine to desired starting location in field.
2. Press record button and “Recording Circle” will display.
3. Drive desired circle.

Continued on next page

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NOTE: It is required to drive over 10% of the circle before you can calculate the center. The more of the circle you drive the more accurate the circle center will be. It is recommended to drive the entire circle for optimum circle center calculation.

4. Press the record button again to stop recording. The recording button can be pressed once the text “End Circle” is displayed. It is recommended to drive and record as much of the circle as possible. The more of the center pivot circle driven the more accurate the center point is calculated. From this circle center concentric circles are displayed based on track spacing.
5. Press Enter button.

Lat/Lon

1. Select the LATITUDE (LAT) input box and enter the center point latitude coordinates.
2. Select the LONGITUDE (LON) input box and enter the center point longitude coordinates.

NOTE: The Latitude and Longitude coordinates have to be entered in decimal degrees

3. Press ENTER button. This enters the circle center, and shows concentric tracks based upon the track spacing.

NOTE: It may be necessary to line the vehicle up on the center pivot tower track or use center shift track to get the tracks lined up with the vehicle.

Circle Center Information

IMPORTANT: Circle Track must be selected in order to operate Circle Track Guidance.

Circle Center information (Latitude and Longitude coordinates) is named (occurs during Set Circle procedure) and assigned to a Field Name where it can be recalled for future use. Farm and Field names are setup and changed in the RESOURCES/CONDITIONS softkey > RESOURCES tab. See Resources/Conditions section of manual to setup farm and field names. The circle center information is saved on the USB drive and can be taken to another GS3 display and recalled for circle track operation. Desktop software can also download circle center information and save the information to additional USB drives.

NOTE: If farm and field names are not created, circle center information will be saved to the “- - - -” farm and field.

If operator desires to perform multiple passes in same field throughout year (or years) and follow exact same passes, then they would recall corresponding circle center information from that farm and field. For example, during planting, operator sets up a Circle Center and names it Pass 1 for River Farm > East Field. When the operator comes back to spray the field a month later, they will select River Farm > East Field from the RESOURCES tab and select PASS 1 from the CURRENT CIRCLE drop-down box and the Circle Center information that was setup during planting will be recalled. Repeat the same steps for subsequent return trips to that field.

Operating Circle Track

When operating Circle Track it is not necessary to drive tracks in a specific order. Depending on your zoom level all tracks that can be displayed will show up on the screen with the closest Track designated by a thicker line. The track number is displayed below the path accuracy indicator and is automatically updated by system as a new track is approached. Track number changes when machine is half way between two tracks.

Off Track error distance is shown in the path accuracy indicator. This number shows how far from closest track machine is. Error number will count up until machine reaches point halfway between two tracks. After reaching mid-point error number will count down as machine approaches next track.

Distance to end of pass utilizing Turn Predictor is shown in the top right portion of the guidance view. Distance will count down to predicted turn and tones will sound when machine is 10 seconds from intersecting turn point and again when predicted turn point has been reached.

NOTE: Track spacing may require adjustment due to operator and/or GPS error.

EXAMPLE: An operator may want to enter a slightly smaller implement width to account for operator error while steering or GPS error.

Shift Track When in Circle Track Mode

Shift Track is used to shift the tracks radially closer or further from the center point. Shift Track does not move the center point itself. This method of Shift Track allows the operator to use various implement widths, account for different lengths of center pivot towers or to account for stretching/shrinking of the center pivot irrigation sections.

IMPORTANT: When using SF2 or SF1 Differential Correction (or when using RTK Quick Survey Mode) the Circle Center may drift over time or at power cycles. In Circles Track Mode, Shift Track does not compensate for GPS drift. In order to achieve accuracy and repeatability when using SF1 or SF2 Differential Correction, the center point must be recalculated by manually driving the circle on a daily basis (see Calculating Circle Center).

NOTE: RTK Absolute Base Mode is highly recommended in high accuracy applications when using Circle Track. Only RTK Absolute Base Mode provides consistent repeatability and accuracy in Circle Track.

Continued on next page

Example 1: Operator makes first pass through the field saving Circle Center information to PASS 1 and RIVER FARM > EAST FIELD pulling a 4.6 m (15 ft) implement. Operator returns for second pass in same field with 9.1 m (30 ft) implement. If operator desires to follow same track stored , operator recalls saved circle center PASS 1, line up on desired track and use a one time shift track to allow for difference in implement widths.

Example 2: Operator is using SF2 and defines a circle center point by manually driving the circle. The following day, the operator returns to the field and finds that the AutoTrac is not lining up properly with the previous day's path due to GPS drift. The operator must re-drive the circle to find the Circle Center Point.

Shift Track Operation

To move line to left, press left shift track button. To move line to right, press right shift track button. Each time the left or right button is pressed, line will move the amount defined in the SHIFT TRACK SETTINGS tab. To re-center line on vehicle's current location press the center shift track button.

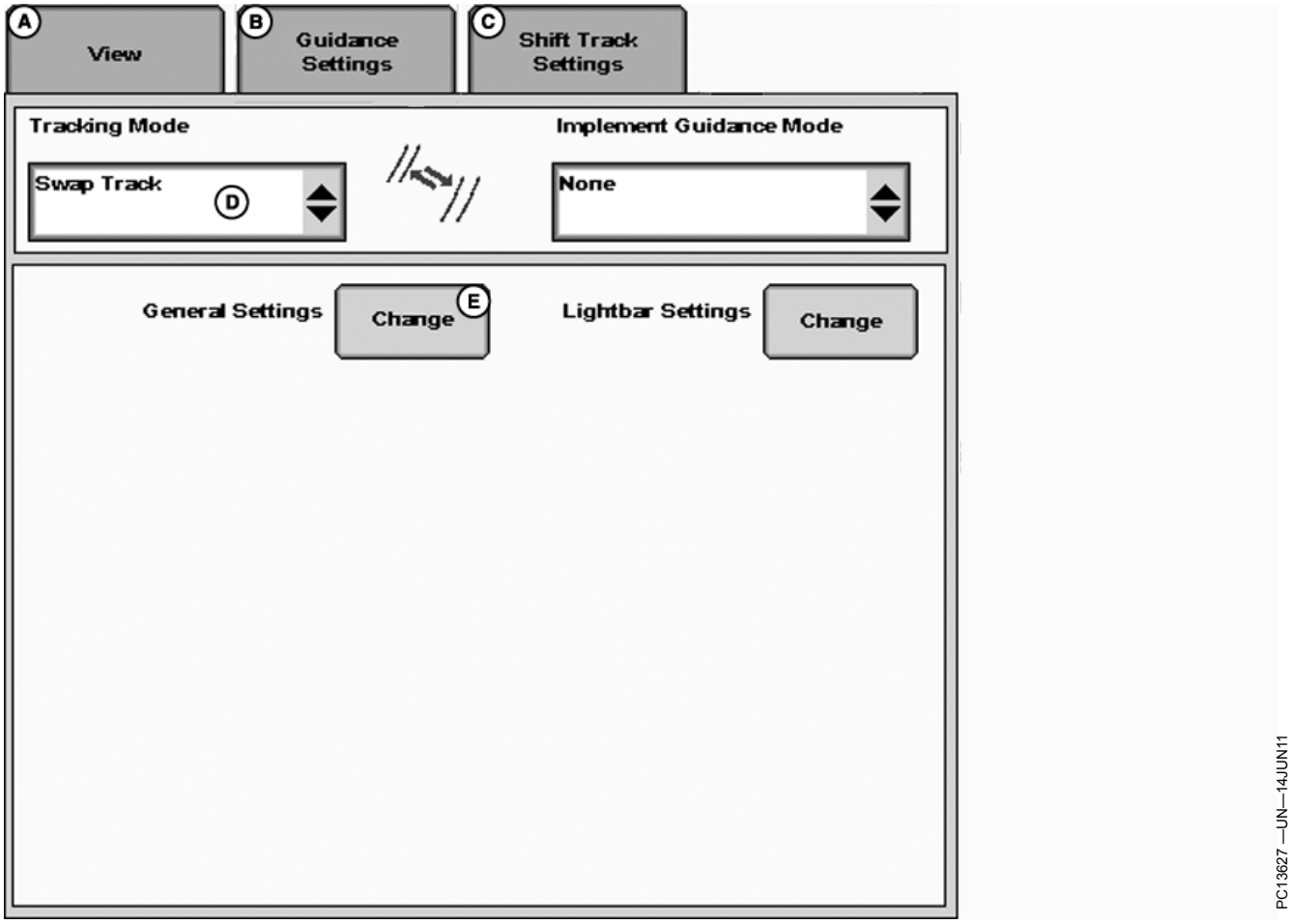
Accuracy in Slope Conditions

Circle Track was designed for center pivot operation on ground with less than 2% slope. Customers who use circle track on slopes greater than 2% need to be aware of the performance of circle track in these conditions and why circle track performs the way that it does.

In operating Circle Track in some slope conditions there are cases where the circle track spacing and the center pivot tower track will not match in tower tracks away from the center pivot. This is due to the difference between distance traveled over a hill and on a level plane. AutoTrac draws the circle spacing as if the plane were level. The tower tracks obviously go over the hill terrain. This difference in distance will increase as slope increases.

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Swap Track Mode



Guidance Settings - Swap Track

A—View tab
B—Guidance Settings tab
C—Shift Track Settings tab
D—Tracking Mode selection
E—General Settings button

Swap track allows operators to switch between two guidance lines in the same field. This can be used to switch between any Straight Track, AB Curve, or Circle Track guidance line within a field.

Swap Track will automatically change Tracking Mode and Track Name associated to the tracks selected without the operator having to do this manually.

NOTE: Swap Track works with existing guidance lines. Lines must be created prior to using Swap Track.

NOTE: Only Straight Track, AB Curve and Circle Track lines can be used.

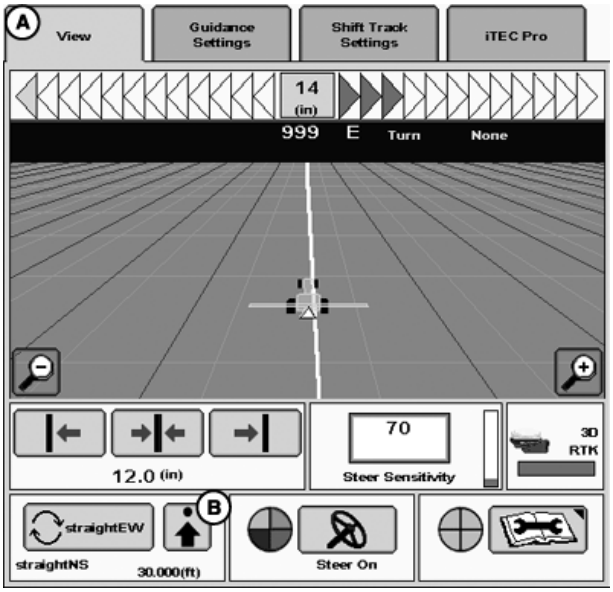
1. Select Guidance Settings tab
2. In Tracking Mode selection, choose Swap Track

Continued on next page

CZ76372,000032A -19-17JUN11-1/4

3. Select VIEW tab
4. Select Swap Track Setup button

A—View tab **B—Swap Track Setup button**



Guidance View - Swap Track

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5. If a guidance line has already been selected, it will be displayed as Current Track. Otherwise, set Current Track to guidance line that will be used first.
6. In Swap-to Track selection, choose second guidance line that will be used in field.

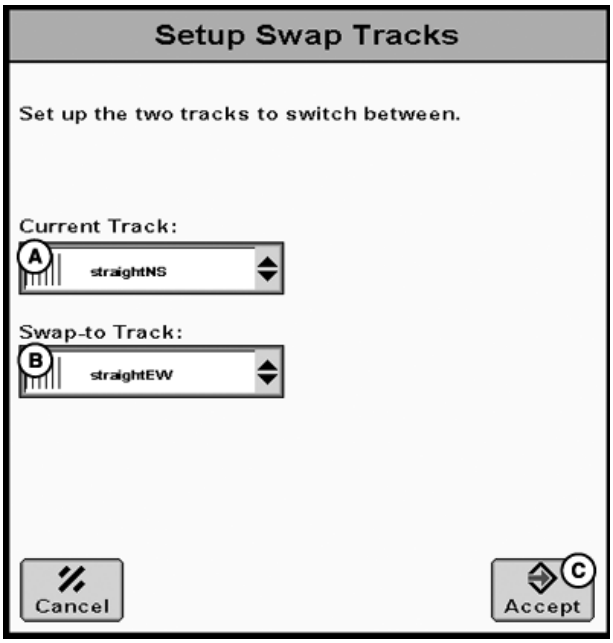
NOTE: Only existing guidance lines for the current field will be displayed. Change tracking mode to Straight Track, AB Curve or Circle Track to create a new guidance line. Once created, return to Swap Track to use new guidance line with other existing lines.

NOTE: Guidance lines are arranged in order of mode (Straight, Curve, then circle) and then alphabetically within each of the modes.

NOTE: Changes to the Current Track and the associated information are not made until the Accept button is pressed.

7. Select Accept button.

A—Current Track selection **C—Accept button**
B—Swap-to Track selection



Setup Swap Tracks

Continued on next page

CZ76372,000032A -19-17JUN11-3/4

8. The Current Track is displayed at the bottom of the View tab and the Swap-to Track is displayed within the Swap Track Toggle button.

   Select the Swap Track Toggle button to switch between the two guidance lines.

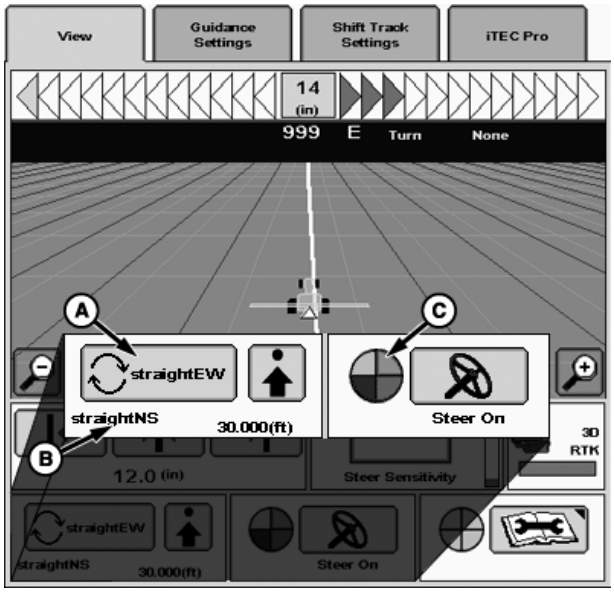
Changing Swap-to Track

While operating with the Current Track, the operator can select the Swap Track Setup button and change the Swap-to Track. This allows the operator to use more than two guidance lines in the field.

Operating with AutoTrac

When the Swap Track Toggle button is selected and the system switches to the new guidance line, AutoTrac disengages. The AutoTrac Status Pie will show three pieces of the pie. The operator only needs to press the resume switch to re-engage AutoTrac.

Changing the Current Track, while operating AutoTrac, disengages AutoTrac when the Accept button is pressed.



PC13630 —UN—15JUN11

Guidance View - Swap Track Buttons

A—Swap Track Toggle button
B—Current Track
C—AutoTrac Status Pie

CZ76372,000032A -19-17JUN11-4/4

AutoTrac Setup

Operate Guidance Systems Safely

Do not use AutoTrac system on roadways.

- Always turn off (Deactivate and Disable) AutoTrac system before entering a roadway.
- Do not attempt to turn on (Activate) AutoTrac system while transporting on a roadway.

The AutoTrac system is intended to aid operator in performing field operations more efficiently. Operator is always responsible for machine path. To prevent injury to operator and bystanders:

- Remain alert and pay attention to surrounding environment.
- Take control of steering wheel when necessary to avoid field hazards, bystanders, equipment, or other obstacles.
- Stop operation if poor visibility conditions impair your ability to operate the machine or identify people or obstacles in machine path.
- Consider field conditions, visibility, and vehicle configuration when selecting vehicle speed. For example, use duals when using AutoTrac at high speeds on tractors.

AutoTrac System

General Information

IMPORTANT:

AutoTrac system relies on GPS system operated by the United States government, which is solely responsible for its accuracy and maintenance. System is subject to changes that could affect accuracy and performance of all GPS equipment.

Operator must maintain responsibility for machine and must turn at end of each track. This system will not turn at end of a track unless equipped with iTEC Pro.

AutoTrac basic system is intended to be used as an assistance tool to mechanical markers. Operator must evaluate overall system accuracy to determine specific field operations where assisted steering may be used. This evaluation is necessary because accuracy required for various field operations may differ depending on farming operation. Because AutoTrac uses STARFIRE differential correction network along with Global Positioning System (GPS), slight shifts in position may occur over time.

AutoTrac Accuracy—The overall AutoTrac system accuracy is dependent upon many variables. The equation looks like:

AutoTrac System Accuracy = Signal accuracy + Vehicle Setup + Implement Setup + Field/Soil Conditions.

It is very important to remember:

- Receiver has to go through a warm-up period after starting.
- Vehicle is setup properly (ballasted according to vehicle operator manual, etc.)
- Implement is setup to run properly (wear parts such as shanks, shovels, and sweeps are in good working condition and correctly spaced).
- Understand how field/soil conditions affect system (loose soil requires more steering than firm soil, but firm soil can cause uneven draft loads).

Status Pie

IMPORTANT: Although AutoTrac system can be activated when SF2 (or SF1 if using AutoTrac SF1 activation) correction signal is confirmed, system accuracy may continue to increase after powering up system.

AutoTrac SF2 activation will operate on SF1, SF2, or RTK signal.

AutoTrac SF1 activation will operate on SF1 signal only.

NOTE: The status pie and steer icon will not be displayed if no SSU or AutoTrac Activation is detected.

AutoTrac icon has four stages as shown in the **AutoTrac Status Pie**

- INSTALLED
- CONFIGURED
- ENABLED

Continued on next page

- ACTIVATED

Stage 1 INSTALLED (1/4 of pie)—SSU and all other hardware necessary for use are installed.

- SSU is detected

PC8832 —UN—25OCT05



Stage 1—INSTALLED

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Stage 2 CONFIGURED (2/4 of pie)—Tracking Mode has been determined. A valid Track 0 has been established. Correct StarFire signal level for AutoTrac activation is selected. Vehicle conditions met.

- Guidance system has been turned ON in the display
- Guidance Track 0 has been defined
- AutoTrac Activation detected.
- StarFire signal is present
- SSU has no active faults pertaining to the steering function
- Hydraulic oil warmer than minimum temperature

PC8833 —UN—25OCT05



Stage 2—CONFIGURED

- Speed is less than maximum
- TCM message is currently available and valid
- In proper operating gear

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Steer On/Off– Press the steer on/off button to move AutoTrac from the CONFIGURED stage to the ENABLED stage.

PC8836 —UN—25OCT05



Steer On/Off

CZ76372,00001A8 -19-01OCT10-4/25

Stage 3 ENABLED (3/4 of pie)—Steer Icon has been pressed. All conditions are met for AutoTrac to operate and system is ready to be activated.

- Select Steer On/Off button once to turn “Steer On”

PC8834 —UN—25OCT05



Stage 3—ENABLED

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Stage 4 ACTIVATED (4/4 of pie with “A”)—Resume switch has been pressed and AutoTrac is steering the vehicle.

- Press Resume Switch—AutoTrac has been activated

PC8835 —UN—25OCT05



Stage 4—ACTIVATED

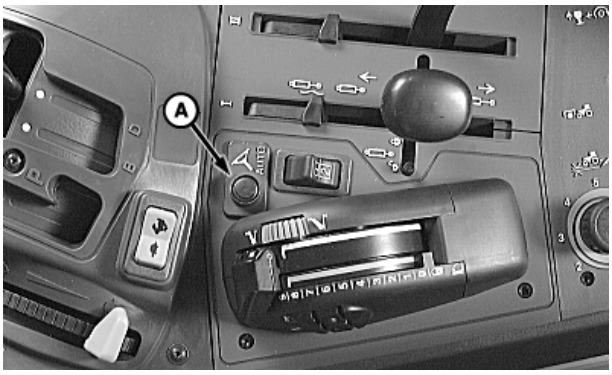
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CZ76372,00001A8 -19-01OCT10-6/25



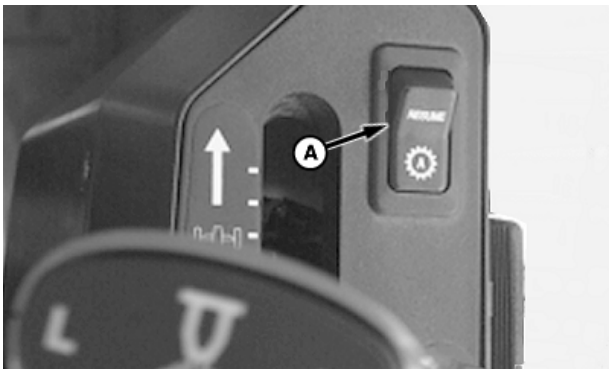
Tractors

PC8629 —UN—03AUG05



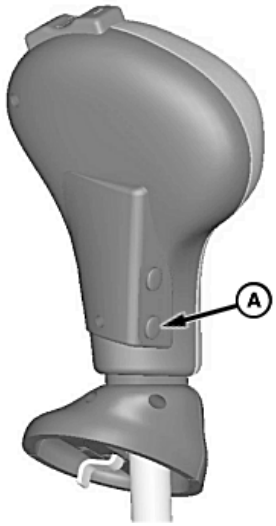
PC8868 —UN—02NOV05

Tractors



N63532 —UN—07AUG03

4700 and 4710 Sprayers

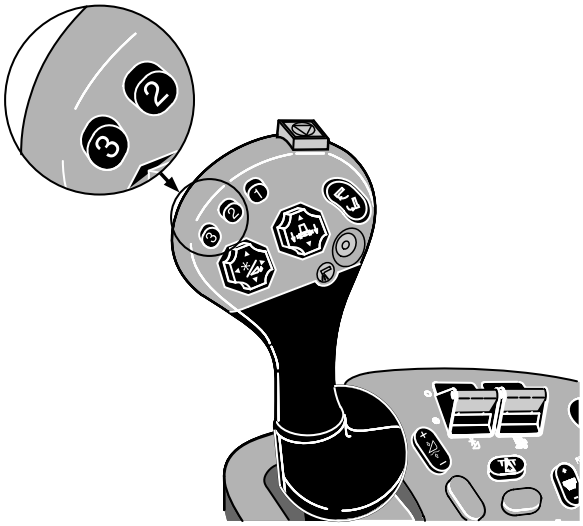


PC7989 —UN—04NOV03

4720, 4920, and 30 Series Sprayers

Resume Switch– Press the Resume Switch to move AutoTrac from the ENABLED stage to the ACTIVATED stage. Pictures show where Resume Switch can be found on tractors, sprayers, and combines. Combines use button 2 or 3 on multi-function handle.

A—Resume Switch



PC7925 —UN—14OCT03

Combines

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CZ76372,00001A8 -19-01OCT10-7/25

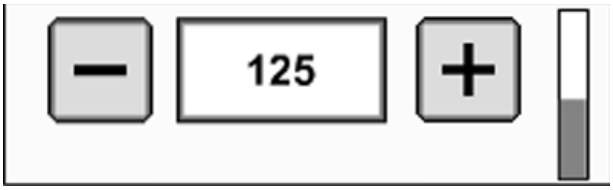
Steering Sensitivity

To adjust steering sensitivity select the input box and enter the desired steering sensitivity value via numeric keypad and select the enter button. The sensitivity can also be adjusted up or down by selecting the + or – buttons on either side of the steer sensitivity input box.

NOTE: Valid range for steer sensitivity is 50-200 with 200 being the most aggressive setting.

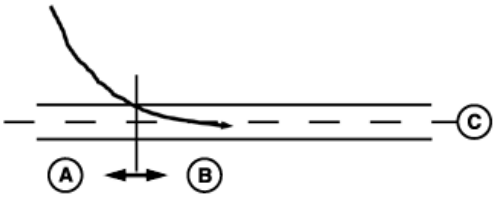
User Adjustable Steering Sensitivity—steering sensitivity is aggressiveness of AutoTrac steering system. A high steering sensitivity setting is more aggressive to allow system to handle tough manual steering conditions such as integral implements with a heavy draft load. A low steering sensitivity setting is less aggressive to allow system to handle lighter draft loads and higher speeds.

PC8852 —UN—30OCT05



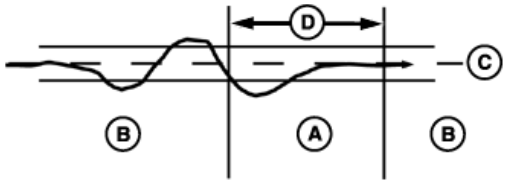
Steer Sensitivity

CZ76372,00001A8 -19-01OCT10-8/25



PC8848 —UN—30OCT05

Figure A



PC8849 —UN—30OCT05

Figure B

A—Default Gain **B—Entered Steering Gain** **C—Track** **D—2.5 seconds**

The steering sensitivity is only applied after machine is within 0.5 M (1.6 ft) of track FIGURE A. Therefore, adjusting steering sensitivity does not change line acquisition performance.

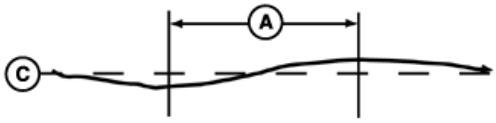
The steering sensitivity is momentarily reduced if tractor front wheel and heading oscillations become too large. This event may be observed when implement is raised at start or end of row transitions. If this event is observed while implement is activated, sensitivity level is too high (see Steering Sensitivity).

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CZ76372,00001A8 -19-01OCT10-9/25

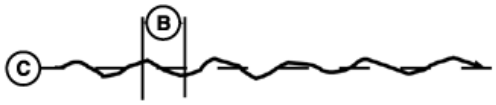
Adjusting Steering Sensitivity Level

The steering sensitivity must be adjusted to accommodate field conditions and tractor/implement configuration. Steering sensitivity should always be evaluated when implement is activated. In general, soft soil requires a higher steering sensitivity level than firm ground and an integral implement requires a higher steering sensitivity than a similar drawn implement. Finally, steering sensitivity will not address condition where front wheels are not able to turn tractor. Always make sure front axle load with implement activated is sufficient for steering before adjusting steering sensitivity level.



PC8850 —UN—30OCT05

Figure A



PC8851 —UN—30OCT05

Figure B

A—10 second **B—1 second** **C—Track**

Too Low—If steering sensitivity is too low, a slow wandering track error pattern can be observed on display. This track error pattern takes approximately 10 seconds to go from side to side as is shown in FIGURE A. If excessive track error is occurring, increase steering sensitivity by small increments until desired accuracy is achieved.

NOTE: It is normal to see a momentary track error when encountering a large rut, furrow, or implement load change. Proper steering sensitivity adjustment will help minimize track error.

Too High—Setting steering sensitivity to highest level will not result in maximum tracking accuracy. If steering sensitivity is too high, excessive front wheel motion will be observed which reduces accuracy and causes unnecessary front axle component wear. At extreme high levels, machine motion will become large enough to cause steering sensitivity to be momentarily changed to default level. Wheel motion to watch for when determining if aggressiveness is too high occurs at an interval of approximately 1 second from side to side as shown in FIGURE B. If excessive wheel motion is observed, lower steering sensitivity by small increments until desired performance is achieved.

Optimizing AutoTrac Controller Performance

When operating in curves, start with the curve sensitivity equal to the optimized acquire sensitivity.

These default settings are a good starting point for most conditions. Each setting can be adjusted to try and optimize performance. Operator may need to readjust line sensitivity, heading, and line sensitivity tracking for best results. Increase or decrease settings to change aggressiveness as desired. If system is not responsive enough, increase sensitivity settings. If desired performance is not achieved, see TROUBLESHOOTING section for more detail.

Advanced AutoTrac Settings

Tuning Recommendations

NOTE: AutoTrac Controller has been tuned to perform very well in most field conditions using the variety of implements encountered by AutoTrac. However, for those conditions outside of normal, we have provided Advanced Settings to allow the operator fine tune their systems for specific field conditions and implements.

Problem or Situation:

AutoTrac performance during line acquisitions, Curve Trac or in-row S-ing that can't be tuned out using the Steering Sensitivity adjustment.

Difficult ground conditions (extremely soft or extremely rough) require additional tuning beyond the capabilities of the standard Steering Sensitivity value.

Read this information in it's entirety BEFORE tuning AutoTrac Advanced Settings.

AutoTrac Advanced Settings software includes 6 different tunable sensitivities that allow finer adjustment of the AutoTrac system. The following are details for tuning this software:

1. **Check & fix other problems before you tune—**Perform necessary mechanical checks and calibrations through associated tractor. It is important to do this step first otherwise you run the risk of

Continued on next page

masking actual machine faults and wasting your time tuning a system that cannot be tuned.

2. **Characterize the current AutoTrac problem—**There are various types of issues this software may be able to resolve. First, the specific type of problem needs to be identified from the possible items below:

   a. **Excessive Wheel Motion—**Overall AutoTrac performance is acceptable, but the operator is concerned about how quickly the wheels are twitching back and forth.

   b. **Aggressive S-ing Motion—**Continual back and forth motion as observed by the operator looking out over the front nose of the tractor. Although a lot of motion is observed, the off-track error shown on the display (distance away from AB line) is often relatively small.

   c. **Lazy S-ing Motion—**Performance of AutoTrac seems very sluggish when trying to stay on the line and slowly wanders from side to side.

   d. **Lazy Line Acquisition—**AutoTrac appears sluggish during line acquisition and the tractor remains off to one side of the line for a long time before getting lined up.

   e. **Aggressive Line Acquisition—**AutoTrac overshoots the line, and continues to overcompensate during acquisition. Results in high frequency, tight S-ing pattern during acquisitions.

   f. **Lazy Curve Track Performance—**AutoTrac is sluggish in Curve Track mode resulting in slow, wandering S-ing about the desired line and often tracks to the outside of the desired path.

   g. **Aggressive Curve Track Performance—**AutoTrac exhibits rapid and high frequency corrections in Curve Track mode, resulting in a tight S-ing pattern or tracking to the inside of the desired path.

3. **Access the Advanced Settings page on GS3.**

4. **ATI Advanced Settings Parameters.**

   a. **Line Sensitivity Heading:** Determines how aggressively AutoTrac responds to heading error.
   Higher Settings: Result in more aggressive response to vehicle heading error.
   Lower settings: Result in less aggressive response to vehicle heading error.
   Range: 50 to 200.

   b. **Line Sensitivity Tracking (Lateral Gain):** Determines how aggressively AutoTrac responds to off-track (lateral) error.
   Higher settings: Result in more aggressive response to vehicle off-track error.
   Lower settings: Result in less aggressive response to vehicle off-track error.
   Range: 50 to 200.

   c. **Heading Lead:** Determines the impact of yaw rate (vehicle rate of turn) on tracking performance. Heading lead acts as a look-ahead parameter and can be used to minimize over steering. Large adjustments may result in poor performance.
   Higher settings: Result in more aggressive response to yaw rate.
   Lower settings: Result in less aggressive response to yaw rate.
   Range: 50 to 130.

   d. **Steering Response Rate:** Adjusts the rate of vehicle steering in order to maintain tracking performance. Increasing steering responsiveness generally results in better tracking performance.
   Higher settings: Result in better tracking performance but may also cause increased wheel motion or jittery behavior.
   Lower settings: Results in decreased wheel motion but may also result in worse tracking performance.
   Range: 50 to 200.

   e. **Curve Sensitivity:** Determines how aggressively AutoTrac responds to a curve in the track. This setting affects performance in curve track guidance only.
   Higher settings: Turn the vehicle in a smaller radius (tighter) around the curve.
   Lower settings: Turn the vehicle in a larger radius around the curve.
   Range: 50 to 200.

   f. **Acquire Sensitivity:** Determines how aggressively the vehicle acquires the track. This setting affects performance while acquiring the track only.
   High settings: Result in more aggressive line acquisitions.
   Lower settings: Result in smoother line acquisitions.
   Range: 50 to 200.

5. **Follow Tuning Instructions—**First try to adjust the settings based on how it was characterized in Step 2. If familiar with how the settings affect performance, proceed to the general tuning instructions if desired. Although the customer's comfort needs to be taken into account, try to tune the tractor based on lateral error on the GS3 and the tracks that tractor leaves behind. After finding a reasonable set of parameters, try running the tractor at different speeds to ensure the settings are still acceptable. Sometimes the settings that maximize AutoTrac performance are very close to making the operator feel uncomfortable.

General Tuning Instructions

Adjustment Recommendations:

Continued on next page

- **Steering Sensitivity—**Set at 100 before making other adjustments – after that make adjustments in increments of 10.
- **Line Sensitivity Tracking—**Adjust in increments of 20.
- **Line Sensitivity Heading—**Adjust in increments 10.
- **Heading Lead—**Adjust in increments 10.
- **Steering Response Rate—**Adjust in increments 10.
- **Acquire Sensitivity—**Adjust in increments 20.
- **Curve Sensitivity—**Adjust in increments 20.

One Value at a Time—Attempt to adjust the settings in the problem field conditions while AutoTrac is active.

1. **Start with the factory default settings.** The Steering Sensitivity value will correlate to the value on the Guidance View Tap. Attempt to use a value for this setting that is similar to the conditions in which you are running (70 for concrete, 100 most conditions, 120 for soft ground). This number may still need to be modified beyond the suggested settings.
2. While AutoTrac is active in the problem conditions (speeds, ground, tire setup, etc), increase/reduce the **Line Sensitivity Heading** by a factor of 10.
3. If the change in Line Sensitivity Heading is ineffective at addressing the issue, reset the Line Sensitivity Heading parameter and increase/reduce the **Heading Lead** in the same manner as the previous step.
4. If none of the previous steps were effective reset the Heading Lead and increase/reduce the **Steering Response Rate** in a similar fashion to the previous steps.

Combining Settings—If the above procedure does not give satisfactory performance and once you have become more comfortable with how the parameters change AutoTrac performance (as detailed in the previous step), try different combinations of parameters while AutoTrac is active. The following chart should be used as a reference and contains suggested values based on various types of conditions, please note that values may need to be adjusted beyond these recommendations to achieve satisfactory performance.

To return all settings to their default values, use the “Return To Defaults” button provided at the bottom of the Advanced Settings screen.

Most Common Conditions

1. **Excessive Wheel Motion—**Adjust Steering Response Rate first before making any other adjustments. Turn down this parameter until an acceptable amount of wheel motion exists. Although it may be possible for this parameter to be changed independently, you may need to increase Line Sensitivity Heading and/or Line Sensitivity Tracking (lateral) gains to compensate for the wheel motion decrease. Keep in mind that forcing this value too low may compromise AutoTrac accuracy because this responsiveness determines how quickly the system can compensate for off-track error. The recommended Steering Wheel Speed setting should be adjusted until there is slightly less wheel motion than what is considered excessive by the operator.
2. **Aggressive S-ing Motion—**The two main adjustments to address aggressive s-ing motion are Line Sensitivity Heading and Heading Lead. Start by increasing Heading Lead to enable the system to look further ahead when making corrections. If this is unsuccessful, the likely cause is overaggressive Line Sensitivity Heading and this gain should then be reduced. Forcing this gain low may require an increase in the Line Sensitivity Tracking (Lateral) gain to maintain the overall system performance at an acceptable level.
3. **Lazy S-ing Motion—**This may be the most difficult situation to address because the sluggish behavior can be caused by field conditions or machine setup. In some cases, tuning the gains may not achieve the performance desired. Start by increasing Line Sensitivity Tracking and check performance. If the system remains sluggish, increase Line Sensitivity Heading until the system begins to respond more aggressively. If fine tuning is needed, the Steering Response Rate can be adjusted accordingly, increasing this value will make the system more aggressive.

Step 1: Optimize Steering Response Rate

- Tune speed by operating parallel to and 1.2 m (4 ft) off of the A-B Line.
- Activate AutoTrac Controller and observe performance.
- While tuning, adjust in increments of 10 between the range of 50 to 200.

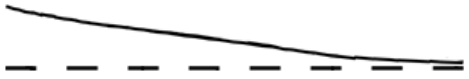
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Step 2: Optimize Acquire Sensitivity

- Tune speed by operating parallel to and 1.2 m (4 ft) off of the A-B Line.
- Activate AutoTrac Controller and observe performance.
- Tune Acquire Sensitivity until machine acquires the line smoothly.

A—Desired Track—Broken Line **B—Actual Track—Solid Line**

PC8797 —UN—21FEB06



Acquire Sensitivity Too Low

PC8796 —UN—21FEB06



Acquire Sensitivity Too High

PC8999 —UN—08MAR06



CZ76372,00001A8 -19-01OCT10-13/25

Step 3: Optimize Line Sensitivity

A: Line Sensitivity—Tracking

- Tune line sensitivity tracking while operating on the A-B line.
- If machine wanders too far from the A-B line adjust line sensitivity—tracking higher.
- If machine becomes unstable around A-B line adjust line sensitivity—tracking lower.

B: Line Sensitivity—Heading

- Tune line sensitivity heading while operating on the A-B line.
- If the front of the machine wanders too far from the track direction adjust line sensitivity—heading higher.
- If machine becomes unstable adjust line sensitivity—heading lower.

NOTE: Line Sensitivities work together—If both are set too high the vehicle will become unstable. If both are set too low, the vehicle will wander around the A-B line.

A—Desired Track—Broken Line **B—Actual Track—Solid Line**



PC8794 —UN—08MAR06

Line Sensitivities Too Low



PC8795 —UN—08MAR06

Line Sensitivities Too High

PC8999 —UN—08MAR06



Continued on next page

CZ76372,00001A8 -19-01OCT10-14/25

Heading Error Meter

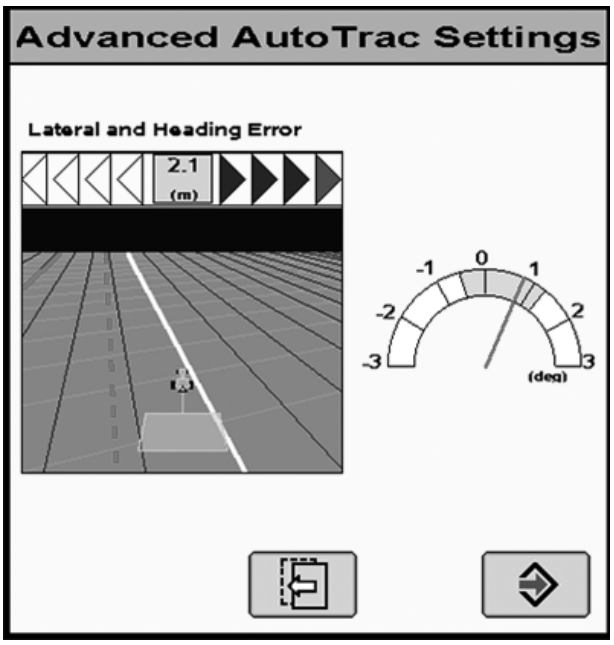
The Heading Error Meter is designed to aid in tuning Advanced AutoTrac Settings.

Ideally, heading error should be within than +/- 1 degree.

The arched bar graph value will live update with minimum and maximum heading error changes over the last 10 seconds.

The Heading Error Meter value indicator will be red when heading error is greater than 0.5 degrees or less than -0.5 degrees. The indicator will be green if the heading error is greater than -0.5 degrees and less than 0.5 degrees.

NOTE: Heading Error Meter is also available when using AutoTrac Universal.



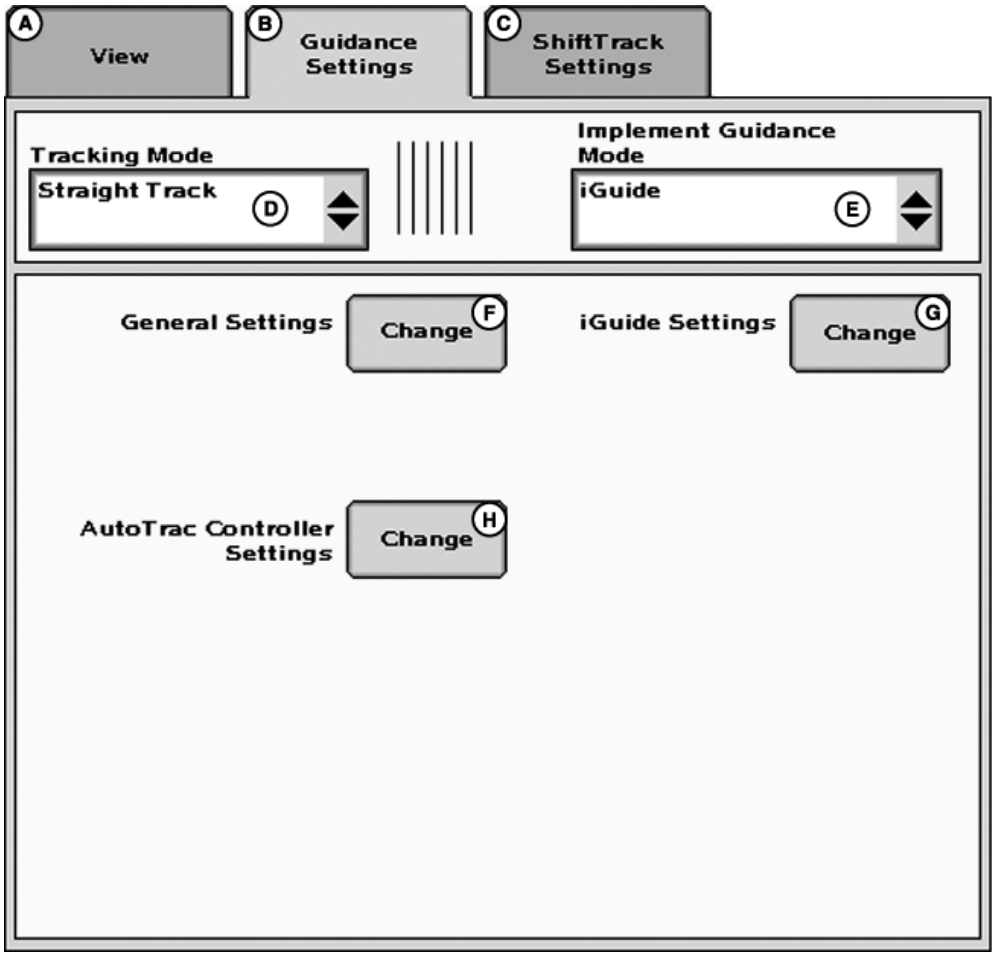
PC12225 —UN—01SEP09

Heading Error Meter

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CZ76372,00001A8 -19-01OCT10-15/25

Advanced AutoTrac Screens



PC12595 —UN—29APR10

A—View
B—Guidance Settings
C—Shift Track Settings
D—Tracking Mode Drop-Down Menu
E—Implement Guidance Mode Drop-Down Menu
F—General Settings
G—iGuide Settings Button
H—AutoTrac Controller Settings

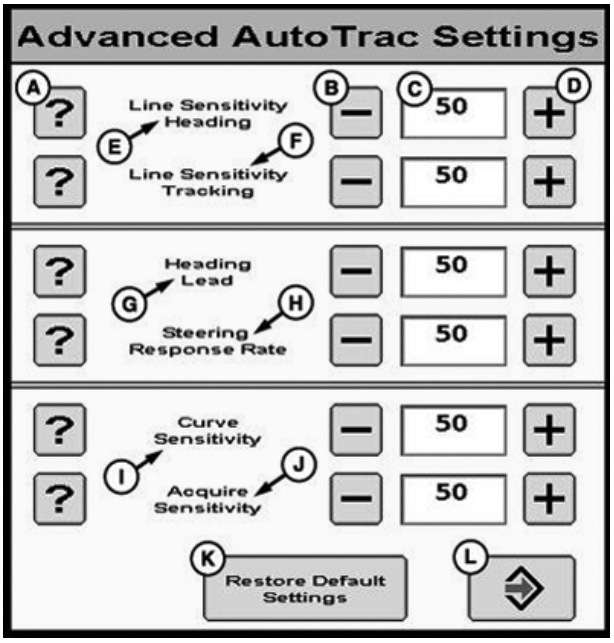
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CZ76372,00001A8 -19-01OCT10-16/25

Advanced AutoTrac Settings

The accept button (L) shall save and apply the current settings and return the user to the previous page. The Restore Default Settings button (K) will set all settings to the factory default value. See each setting for its default value. The '?' button (A) will display a pop-up with help text for the specific setting.

A—Help Button
B—Decrease Button
C—Input Box
D—Increase Button
E—Line Sensitivity Heading
F—Line Sensitivity Tracking
G—Heading Lead
H—Steering Response Rate
I— Curve Sensitivity
J— Acquire Sensitivity
K—Restore Default Settings Button
L—Accept Button



PC11474 —UN—15NOV08

Advanced AutoTrac Settings

CZ76372,00001A8 -19-01OCT10-17/25

Optimizing AutoTrac Controller Performance

When operating in curves, start with the curve sensitivity equal to the optimized acquire sensitivity.

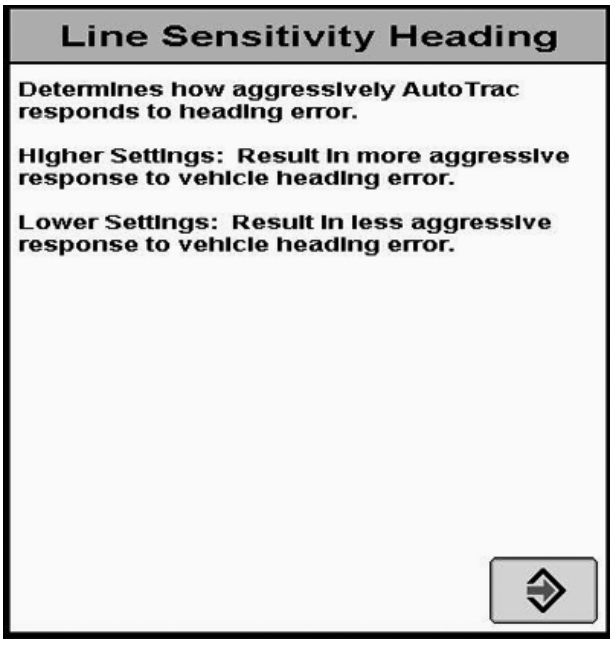
These default settings are a good starting point for most conditions. Each setting can be adjusted to try and optimize performance. Operator may need to readjust line sensitivity - heading and line sensitivity - tracking for best results. Increase or decrease settings to change aggressiveness as desired. If system is not responsive enough, increase sensitivity settings. If desired performance is not achieved, see TROUBLESHOOTING section for more detail.

Line Sensitivity Heading

Determines how aggressively AutoTrac responds to heading errors.

Higher settings: Result in more aggressive response to vehicle heading error.

Lower settings: Result in less aggressive response to vehicle heading error.


Line Sensitivity Heading
Determines how aggressively AutoTrac responds to heading error.
Higher Settings: Result in more aggressive response to vehicle heading error.
Lower Settings: Result in less aggressive response to vehicle heading error.

PC11477 —UN—15NOV08

Line Sensitivity Heading

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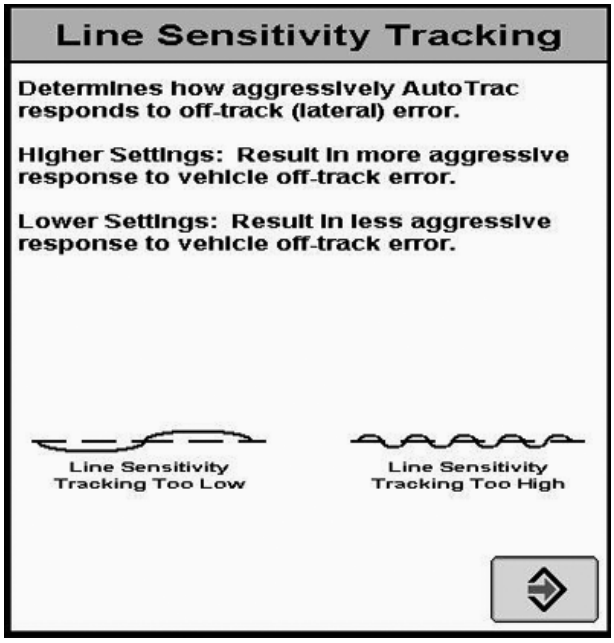
CZ76372,00001A8 -19-01OCT10-18/25

Line Sensitivity Tracking

Determines how aggressively AutoTrac responds to off-track (lateral) error.

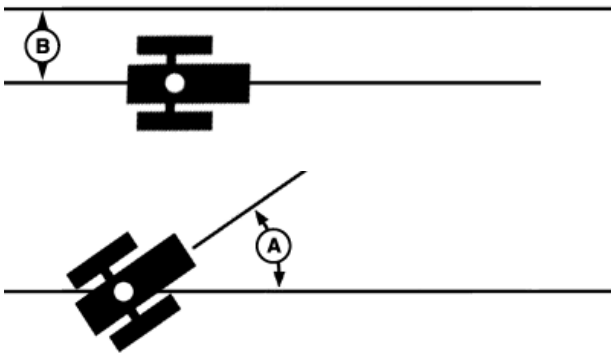
Higher settings: Results in more aggressive response to vehicle off-track error.

Lower Settings: Results in less aggressive response to vehicle off-track error.


Line Sensitivity Tracking
Determines how aggressively AutoTrac responds to off-track (lateral) error.
Higher Settings: Result in more aggressive response to vehicle off-track error.
Lower Settings: Result in less aggressive response to vehicle off-track error.
Line Sensitivity Tracking Too Low
Line Sensitivity Tracking Too High

PC11476 —UN—15NOV08

Line Sensitivity Tracking



PC8993 —UN—09MAR06

PC8994 —UN—07MAR06

A—Heading Error **B—Tracking Error**

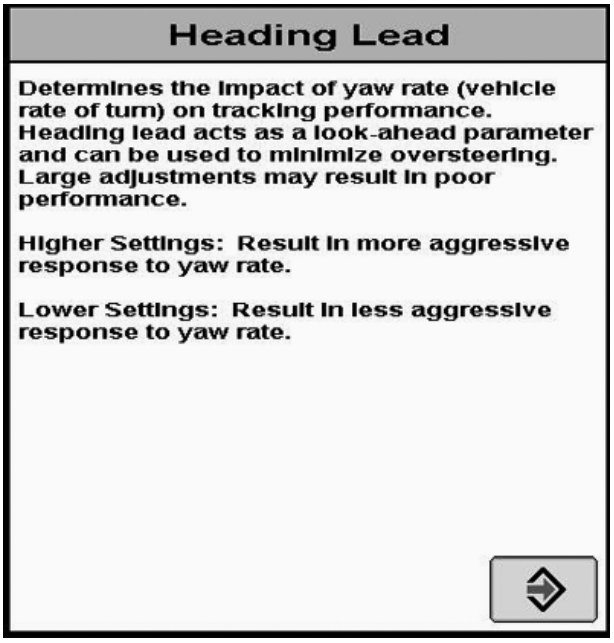
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Heading Lead

Determines the impact of yaw rate (vehicle rate of turn) on tracking performance. This can be thought of as a look-ahead parameter. Large adjustments may result in poor performance.

Higher settings: Results in more aggressive response to vehicle twist.

Lower Settings: Results in less aggressive response to vehicle twist.


Heading Lead
Determines the impact of yaw rate (vehicle rate of turn) on tracking performance. Heading lead acts as a look-ahead parameter and can be used to minimize oversteering. Large adjustments may result in poor performance.
Higher Settings: Result in more aggressive response to yaw rate.
Lower Settings: Result in less aggressive response to yaw rate.

PC11479 —UN—15NOV08

Heading Lead

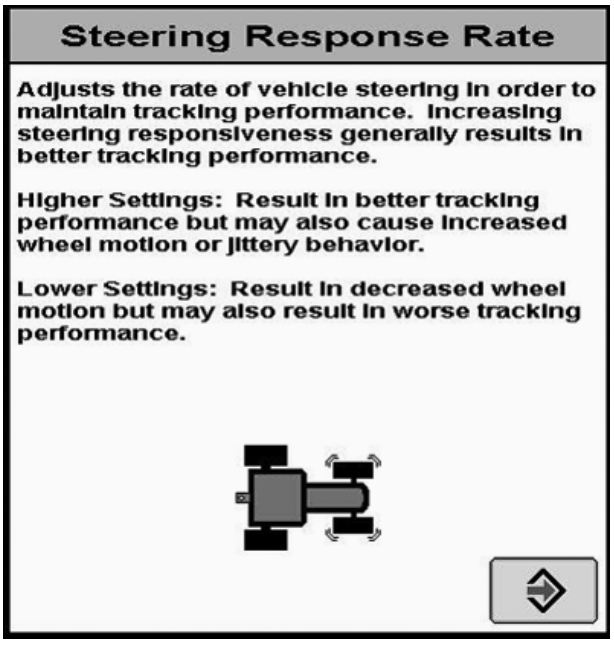
CZ76372,00001A8 -19-01OCT10-20/25

Steering Response Rate

Determines the maximum speed the wheels turn to make corrections. Higher gains will turn the wheels faster.

Higher settings: Results in better tracking performance but may also cause increased wheel motion or jittery behavior.

Lower Settings: Results in decreased wheel motion but may also result in worse tracking performance.


Steering Response Rate
Adjusts the rate of vehicle steering in order to maintain tracking performance. Increasing steering responsiveness generally results in better tracking performance.
Higher Settings: Result in better tracking performance but may also cause increased wheel motion or jittery behavior.
Lower Settings: Result in decreased wheel motion but may also result in worse tracking performance.

PC11475 —UN—15NOV08

Steering Response Rate

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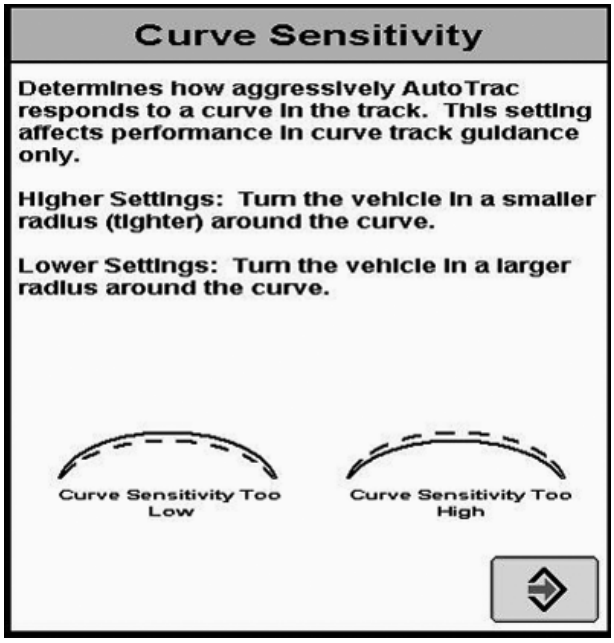
CZ76372,00001A8 -19-01OCT10-21/25

Curve Sensitivity

Determines how aggressively AutoTrac responds to a curve in the track. This setting affects performance in curve track guidance only.

Higher settings: Turns the vehicle in a smaller radius (tighter) around the curve.

Lower Settings: Turns the vehicle in a larger radius around the curve.


Curve Sensitivity
Determines how aggressively AutoTrac responds to a curve in the track. This setting affects performance in curve track guidance only.
Higher Settings: Turn the vehicle in a smaller radius (tighter) around the curve.
Lower Settings: Turn the vehicle in a larger radius around the curve.
Curve Sensitivity Too Low
Curve Sensitivity Too High

PC11480 —UN—15NOV08

Curve Sensitivity

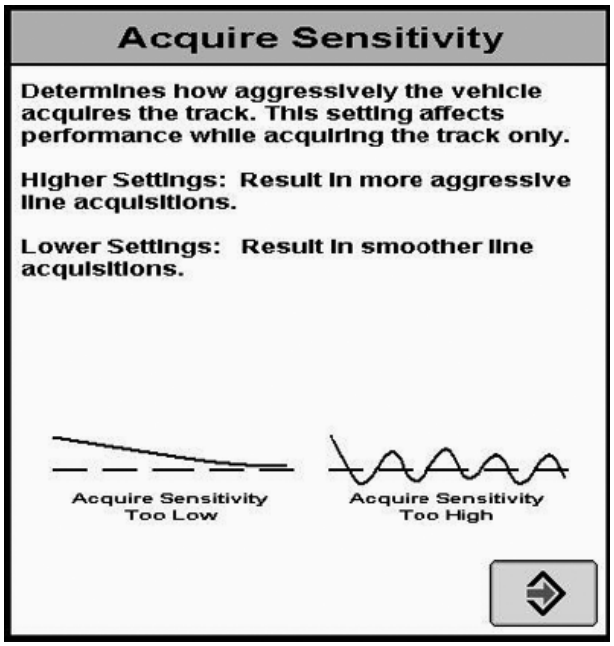
CZ76372,00001A8 -19-01OCT10-22/25

Acquire Sensitivity

Determines how aggressively the vehicle acquires the track. This setting affects performance while acquiring the track only.

High settings: Results in a more aggressive track line acquisition.

Lower settings: Results will give smoother entry into the next track.


Acquire Sensitivity
Determines how aggressively the vehicle acquires the track. This setting affects performance while acquiring the track only.
Higher Settings: Result in more aggressive line acquisitions.
Lower Settings: Result in smoother line acquisitions.
Acquire Sensitivity Too Low
Acquire Sensitivity Too High

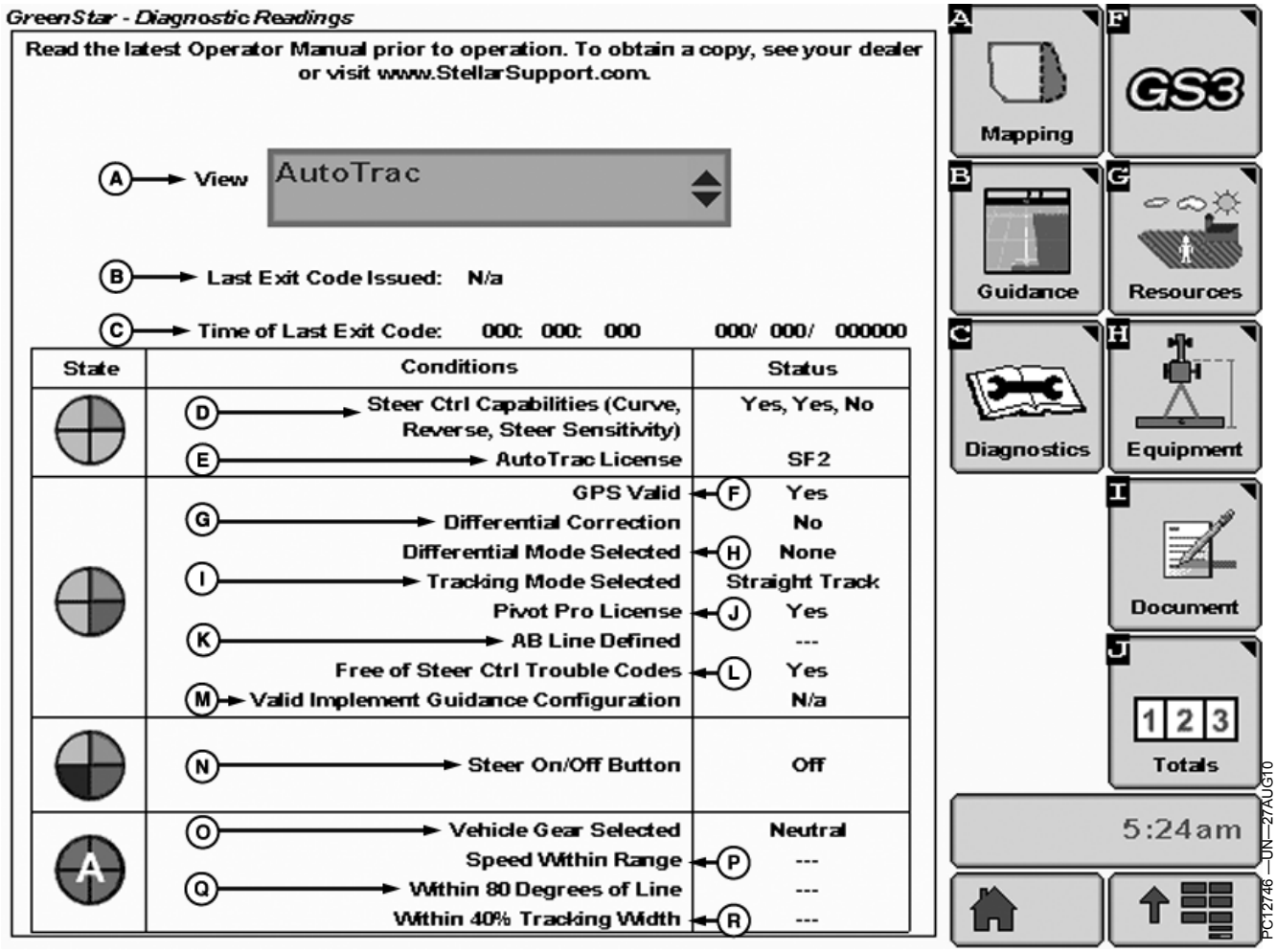
PC11481 —UN—15NOV08

Acquire Sensitivity

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CZ76372,00001A8 -19-01OCT10-23/25

Diagnostic Readings



GREENSTAR 3 PRO >> DIAGNOSTIC softkey >> AutoTrac

- **(A) View** - Dropdown Box
- **(B) Last Exit Code Issued** - Indicates why AutoTrac deactivated or will not activate.
- **(C) Time of Last Exit Code** - Time and date of when last exit code occurred
- **(D) SSU Capabilities (Curve, Reverse, Steer Sensitivity)** - Indicates if the vehicle steering controller is capable of operating in Curve Track, Reverse, or if Steer Sensitivity is tunable from display. Yes or No will be displayed indicating if that feature is available or not.
- **(E) AutoTrac License** - Indicates whether or not the display has a valid AutoTrac License and which it is (SF1 or SF2)
- **(F) GPS Valid** - Indicates if valid GPS is received.
- **(G) Differential Correction** Indicates if receiving differential correction.
- **(H) Differential Mode Selected** Indicates the differential correction mode selected on the StarFire receiver (SF1, SF2, RTK)
- **(I) Tracking Mode Selected** - Displays which tracking mode is currently selected
- **(J) Pivot Pro License** - Indicates weather or not the display has a valid Pivot Pro License
- **(K) AB Line Defined** - Indicates if a valid AB (Track 0) is defined and selected for the current tracking mode.
- **(L) Free of SSU Trouble Codes** - Indicates if SSU has any active trouble codes which might not allow AutoTrac to activate.
- **(M) Valid Implement Guidance Configuration** - If implement guidance is in use, indicates whether certain settings and constraints have been met.
- **(N) Steer On/Off Button** - Indicates if steer on/off button is in the on or off state.
- **(O) Vehicle Gear Selected** - Show which gear the vehicle is currently in.
- **(P) Speed Within Range** - Indicates if vehicle is traveling within the speed range limitations of the platform AutoTrac is operating on.
- **(Q) Within 80 Degrees of Line** - Indicates if vehicle heading is within 80 degrees of the track the vehicle is trying to acquire.
- **(R) Within 40% Tracking Width** - Indicates if vehicle off track error is within 40% of the track spacing.

Continued on next page

AutoTrac System Accuracy

Accuracy Equation

AutoTrac System Accuracy = GPS Signal Accuracy + Steering Kit Type + Vehicle Setup + Tracking Mode + Implement Setup + Field/Soil Conditions

GPS Signal Accuracy

The starting point of any system is the receiver. Guidance begins with that receiver receiving raw GPS signals from satellites and a differential correction to that signal. Raw GPS tells the receiver approximately where it is, and the differential correction signal hones into its actual position. Fifteen-minute pass-to-pass accuracy is the range of accuracy that a customer will experience in typical conditions. For example, the SF1 signal has a 15-minute pass-to-pass accuracy of 33 cm (13-in.) 95% of the time. This means that the accuracy of a StarFire iTC with SF1 signal will show a location 33 cm (13-in.) or less to its actual position 95% of the time and 16 cm (6.5-in.) or less 68% of the time. The signal accuracy that the customer is using helps determine the accuracy they can expect.

Steering Kit Type

Steering Kit Type refers to which type of AutoTrac vehicle kit, ATU, or integrated AutoTrac steering kit is being used on the machine. While performance can be similar between a properly set up ATU kit and an integrated kit, testing has shown that total system error may be greater with the ATU kit than with the integrated kit. Customers may notice delayed line acquisition and higher off-track errors with the ATU kit. AutoTrac universal kit on 2WD machines may also have less accuracy due to less steering authority on the front end. For maximum accuracy, both the integrated kit and the ATU kit need to have sensitivities properly set up and monitored for field conditions.

Vehicle Setup

Proper setup of vehicles is crucial to the performance of AutoTrac. This includes making sure the vehicle is ballasted by increasing weight on the steering axle up to, but not exceeding the weight capacity of the tires to improve steering authority. Please note that if additional attachments, such as side or front mounted saddle tanks, are installed, ballast can be affected. Additional attachments need be taken into account when selecting proper ballasting. Along with increased ballast, it is important to remember AutoTrac performance will vary by platform due to inherent vehicle design differences. For example, track tractors give an operator very good accuracy control, but a sprayer or 4WD tractor loses some of that accuracy control due to differences in drive train and steering response. Ground speed also affects performance. With the ability to operate at higher speeds, operators need to remember higher speeds impact performance. Using AutoTrac above 19 km/h (12 mph), especially when using Curve Track, will give accuracy on the ground that may be less than desirable for some row-crop applications.

Please refer to machine operator's manual for complete recommendations on ballast.

Tracking Mode

Tracking Mode refers to the AutoTrac mode being used with the system (Straight Track, Circle Track, or Curve Track). With Straight Track and Curve Track, multiple A/B lines can be set based off the initial track and implement width. However, in Adaptive Curve mode, the track is navigated from the last-recorded pass. While John Deere Curve Track software "smooths" the track to record a better curved line, there is still the opportunity for greater error on the ground with Curve Track than in both Straight Track and Circle Track. Once all tracks have been laid and the vehicle is operating in repeat mode, the vehicle still has the possibility for increased error due to the machine characteristics while navigating through a curve pass. GPS Signal Accuracy, Vehicle Setup, Implement Setup, and Field/Soil Conditions still affect the accuracy equation.

Implement Setup

A common cause of unsatisfactory performance of the AutoTrac system is improper implement setup. It is best to ensure AutoTrac performance of the vehicle alone is sufficient prior to attaching to an implement. Once the vehicle is proven to sufficiently track up and back on the same line, connect the implement to ensure overall system performance. The implement must pull straight and level behind the vehicle, meaning all parts (shanks, planter units, etc) need to be spaced appropriately and should not be damaged or worn unevenly from one side to the other. A good exercise is to measure from the center line of the tractor to each individual engagement point to ensure the implement is symmetrical. This helps avoid uneven side-to-side draft on the tractor. When using integral planters on flat and level ground, sway blocks should be set to allow the free travel of the tractor separate from the implement, approximately 3.8—5.0 cm (1.5—2.0 in.) of travel without allowing the lower arms of the three-point to come in contact with the tires. Sway blocks may need to be adjusted more tightly to accommodate side slopes and other side draft operations to achieve desirable implement performance.

Field/Soil Conditions

Continued on next page

The environment in which the vehicle is operating also affects the performance of the AutoTrac system. For example, loose soil conditions can reduce the effectiveness of the steering system because traction is lost. Firm soil conditions can cause uneven loads in high-draft applications. Differential Lock can provide some compensation to lost traction and uneven loads or terrain, depending on the situation and operation being performed. However, it must be used at the operator's discretion and only if the operator feels it is beneficial to the particular operation. Slope of the land can also play a key factor in performance because the machine or implement may slide down a slope while trying to operate AutoTrac resulting in a motion called 'crabbing'. Currently, AutoTrac does not compensate for crabbing along a slope.

There are many factors affecting accuracy and performance of the GreenStar AutoTrac system. It is imperative to understand these factors and what can and cannot be adjusted to achieve optimal performance. For more information on expected accuracy, please visit the accuracy calculator on www.StellarSupport.com.

Points To Remember

It is very important to remember:

- Receiver has to go through a warm-up period upon start-up.
- Vehicle is setup properly (ballasted according to vehicle operator manual, etc.)
- Implement is setup to run properly (wear parts such as shanks, shovels, and sweeps are in good working condition and correctly spaced).
- Understand how field/soil conditions affect system (loose soil requires more steering than firm soil, but firm soil can cause uneven draft loads).

CZ76372,00001A7 -19-01OCT10-2/2

AutoTrac Tractors

Enabling System

The following criteria must be met for AutoTrac to be enabled:

- Vehicle has an AutoTrac capable steering controller (SSU)
- Hydraulic oil temp is above 20°C (68°F)
- AutoTrac license activated (26-digit Activation Code)
- Track 0 has been set up
- GPS signal status is present
- TCM turned on

Activating System

CAUTION: While AutoTrac is activated, operator is responsible for steering at end of path and collision avoidance.

Do not attempt to turn on (Activate) AutoTrac system while transporting on a roadway.

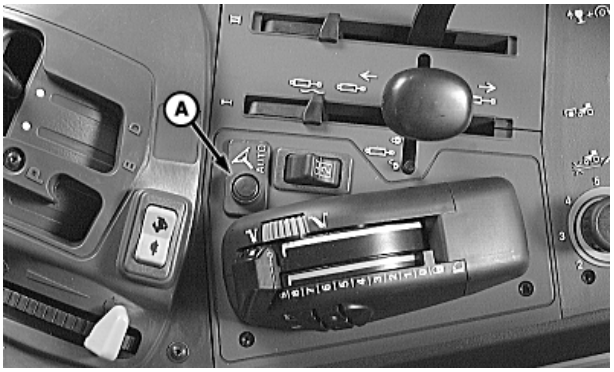
After system has been ENABLED, operator must manually change system to ACTIVATED status when steering assistance is desired.

NOTE: Activating AutoTrac will activate automatic power shift if it has been set. In 8020T and 9020T tractors, automatic power shift (APS) must be set up after enabling AutoTrac. If AutoTrac is enabled after automatic power shift has been set, APS must be reset.

APS can be set either before or after enabling AutoTrac in 8010T tractors.



PC8629 —UN—03AUG05



PC8868 —UN—02NOV05

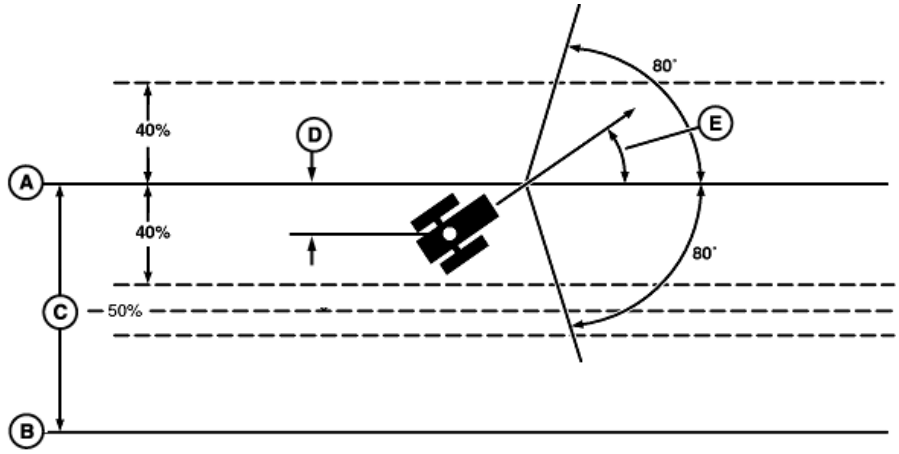
A—Resume Switch

NOTE: Resume switch location may vary depending on vehicle type, model, and year.

Press resume switch (A) to activate AutoTrac. This will initiate assisted steering. A-Resume Switch.

Continued on next page

CZ76372,00001AA -19-01OCT10-1/2



PC8866 —UN—02NOV05

A—Track 0
B—Track 1 South
C—Track Spacing
D—Off-Track Lateral Error
E—Track Heading Error

Track number changes at 50% of row spacing.

Once tractor is at end of row operator must turn system to next pass. By turning steering wheel, AutoTrac is deactivated. operator must turn onto next track.

AutoTrac can be activated by pressing resume switch only after following conditions are met:

- Forward vehicle speed is less than 30 km/h (18.6 mph)
- Reverse speed is less than 10 km/h (6 mph)
- Vehicle heading is within 80° of desired track.
- The machine is within 40% of track spacing
- Operator is seated.
- TCM is on.
- In reverse AutoTrac will remain activated for 45 seconds. After 45 seconds the machine must be put in a forward gear before reverse will activate again.

Deactivating System

CAUTION: Always turn off (Deactivate and Disable) AutoTrac system before entering a roadway.

To turn off AutoTrac from GUIDANCE VIEW tab, toggle STEER ON/OFF button until STEER OFF is displayed.

Deactivating System

AutoTrac system can be made DEACTIVE by the following methods:

- Turning steering wheel.
- Exceeding speed of 30 km/h (18.6 mph).
- Degradation of differential correction signal from SF2 or RTK to WAAS/EGNOS for longer than 3 minutes.
- Pressing STEER ON/OFF button.
- Operator out of seat for more than 7 seconds.
- Activated in neutral longer than 30 seconds.
- In reverse for longer than 45 seconds.
- Reverse speed exceeds 9.6 km/h (6 mph).

CZ76372,00001AA -19-01OCT10-2/2

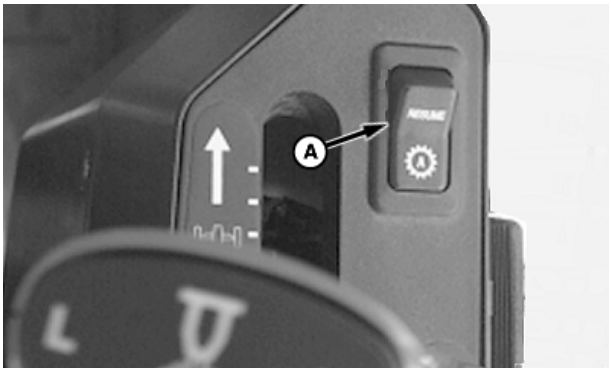
AutoTrac Sprayers

Enabling System

Press STEER ON/OFF button to toggle between enable/disable AutoTrac.

To enable system, all of the following criteria must be met:

- AutoTrac activation is detected.
- Track 0 has been setup.
- Tracking mode selected.
- SSU is in normal operating mode.
- 4700 Series Sprayer is in 1st, 2nd, or 3rd range.



N63532 —UN—07AUG03

4700 and 4710 Sprayer Resume Switch

A—Resume Switch

CAUTION: While AutoTrac is activated, operator is responsible for steering at end of path and collision avoidance.

Do not attempt to turn on (Activate) AutoTrac system while transporting on a roadway.

After system has been ENABLED, operator must manually change system to ACTIVATED status when steering assistance is desired.

Press resume switch (A) to activate AutoTrac. This will initiate assisted steering.

NOTE: 4700 and 4710 have resume switch on console. 4720, 4920, 30 Series, and 5430i Sprayers have 2 buttons on multi-function lever.

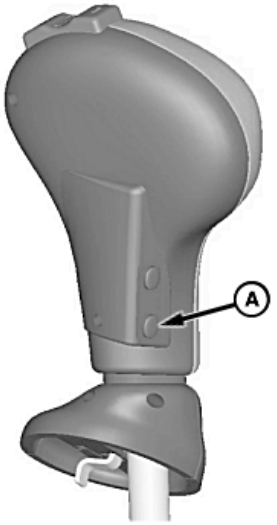
In order to activate system the following criteria must be met:

- Sprayer multi-function lever is out of park.
- 4700 Series Sprayer is in 1st, 2nd, or 3rd range.
- 4900 Series Sprayer is in field gears.
- 5430i Series Sprayer is in 1st, 2nd, or 3rd range.
- Vehicle speed is less than 37 km/h (23 mph).
- 4900 Series Sprayer is in Field Mode
- 5430i Sprayer is in 1st, 2nd, or 3rd range and transport lock out switch is off.
- Hydraulic oil is warmed to minimum specification.

Specification	
Hydraulic Oil Minimum Temperature—Temperature	10 °C (50 °F)

- TCM must be installed and turned on.

Activating System



PC7989 —UN—04NOV03

4720, 4920, 30 Series, and 5430i Sprayers Resume Switch

- Vehicle heading is within 45 degrees of desired track above 11.3 km/h (7 mph); Vehicle heading is within 80° of desired track below 11.3 km/h (7 mph).
- Off track error is within 40% of track spacing.
- Operator is seated.
- TCM is on.
- In reverse, AutoTrac will remain activated for 45 seconds. After 45 seconds, the machine must be put in forward gear before reverse will activate again.
- On 5430i Sprayers, AutoTrac is only possible in 2-wheel-steering mode. When operating in 4-wheel-steering mode and AutoTrac is activated, the rear wheels are going to be centred in neutral position and the system switches set to 2-wheel-steering mode automatically. When the operator activates the 4-wheel-steering mode again, AutoTrac will be disabled.

Deactivating System

CAUTION: Always turn off (Deactivate and Disable) AutoTrac system before entering a roadway.

To turn off AutoTrac from GUIDANCE VIEW tab, toggle STEER ON/OFF button until STEER OFF is displayed.

Continued on next page

CZ76372,00001AB -19-01OCT10-1/2

AutoTrac system can be made DEACTIVE by following methods:

- Turning steering wheel.
- By placing multi-function lever in neutral.
- Slowing to speeds less than 0.5 km/h (0.3 mph).
- Exceeding speed of 37 km/h (23 mph).
- In reverse longer than 45 seconds.
- Shifting speed to 4th range on 4700 Series Sprayers.
- Shifting to transport mode on 4900 Series Sprayers.
- Shifting speed to 4th range on 5430i Sprayers.
- Activating 4-wheel-steering mode on 5430i Sprayers.
- Toggle STEER ON/OFF button until STEER OFF is displayed in GUIDANCE VIEW tab.
- Operator out of seat for more than 7 seconds.

CZ76372,00001AB -19-01OCT10-2/2

AutoTrac Combines

Enabling System

Press STEER ON/OFF button to toggle between enable/disable AutoTrac.

To enable system, all of the following criteria must be met:

- AutoTrac activation is detected.
- Track 0 has been setup.
- Tracking mode selected.
- SSU is in normal operating mode.
- TCM must be installed and turned on.
- Header On

Activating System

⚠ CAUTION: While AutoTrac is activated, operator is responsible for steering at end of path and collision avoidance.

Do not attempt to turn on (Activate) AutoTrac system while transporting on a roadway.

After system has been ENABLED, operator must manually change system to ACTIVATED status when steering assistance is desired.

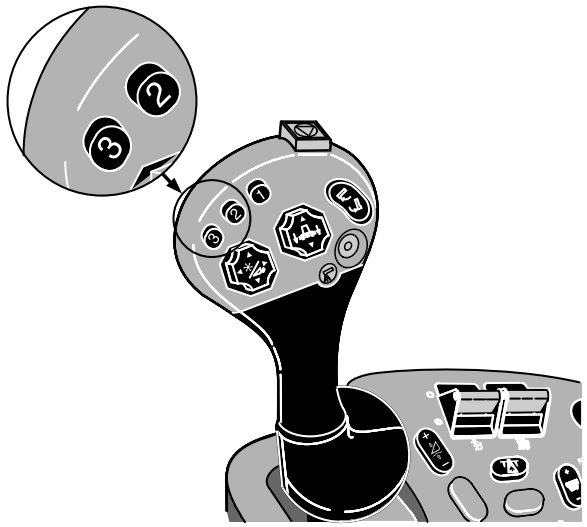
Press button 2 or 3 on multi-function handle to activate AutoTrac. This will initiate assisted steering.

In order to activate system following criteria must be met:

- Road Transport Switch is in field position.
- Header is engaged.
- Multi-function handle is forward.
- Vehicle speed is less than 22 km/h (13.6 mph).
- Vehicle heading is within 45° of desired track.
- Off track error is within 40 % of track spacing.
- Operator is seated.
- TCM is on.

Deactivating System

⚠ CAUTION: Always turn off (Deactivate and Disable) AutoTrac system before entering a roadway.



To turn off AutoTrac from GUIDANCE VIEW tab, toggle STEER ON/OFF button until STEER OFF is displayed.

AutoTrac system can be made DEACTIVE by following methods:

- Disengaging header
- Turning steering wheel
- Slowing to speeds less than 0.5 km/h (0.3 mph)
- Exceeding speed of 22 km/h (13.6 mph)
- Toggle STEER ON/OFF button until STEER OFF is displayed in GUIDANCE VIEW tab.
- Operator out of seat for more than 5 seconds.
- Track number is changed.
- In reverse longer than 45 seconds.

CZ76372,00001AC -19-01OCT10-1/1

AutoTrac Self-Propelled Forage Harvesters

Enabling System

Press STEER ON/OFF button to toggle between enable/disable AutoTrac.

To enable system, all of the following criteria must be met:

- AutoTrac activation is detected.
- Track has been set.
- Tracking mode selected.
- SSU is in normal operating mode.
- TCM is installed and turned ON.
- Clutch switch (A) is engaged.
- AutoTrac/Row Guidance button (B) is ON.

Activating System

CAUTION: While AutoTrac is active operator is responsible for steering at end of path and collision avoidance.

After system has been ENABLED, operator must manually change system to ACTIVE status when steering assistance is desired.

Press resume switch (A) on multi-function handle to activate AutoTrac. This will initiate assisted steering.

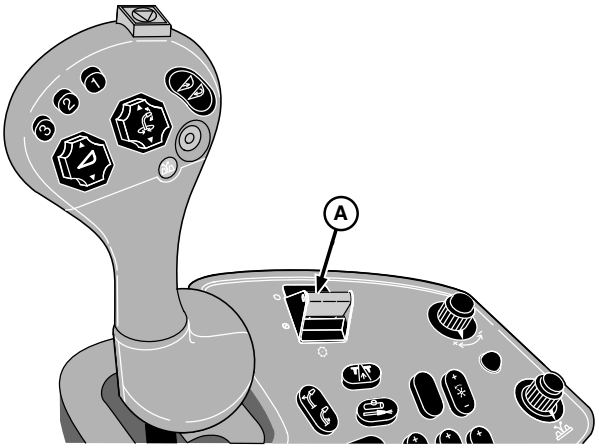
In order to activate system following criteria must be met:

- Road Transport Switch is in field position.
- Row Track button needs to be turned ON.
- Main clutch is switched ON.
- Header is engaged.
- Forward vehicle speed is greater than 0.5 km/h (0.3 mph) or reverse vehicle speed is less than 10 km/h (6.0 mph).
- Forward vehicle speed is less than 22 km/h (13.2 mph).
- Vehicle heading is within 80° degrees of desired track if speed is less than 10 km/h.
- Vehicle heading is within 45° degrees of desired track if speed is higher than 10 km/h.
- Off track error is within 40 % of track spacing.
- Operator is seated.
- TCM is installed and turned ON.

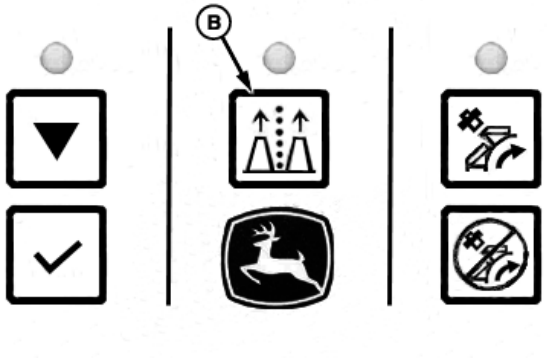
Deactivating System

CAUTION: Always turn off (Deactivate) AutoTrac system before entering a roadway. Do not attempt to turn on (Activate) AutoTrac system while transporting on a roadway.

AutoTrac system can be made DEACTIVE by following methods:



PC8987 —UN—29NOV05



PC8989 —UN—29NOV05

A—Clutch Engage Switch

B—AutoTrac/Row Guidance Button

- Deactivating header.
- Turning steering wheel more than 30 degrees.
- Switching OFF main clutch.
- Field/Road switch is switched to road mode.
- Slowing to speeds less than 0.5 km/h (0.3 mph).
- Exceeding forward speed of 22 km/h (13.2 mph) or reverse speed exceeds 10 km/h (6 mph).
- Reverse operation for longer than 45 seconds.
- Degradation of differential correction signal from higher to lower accuracy level for longer than three minutes.
- Toggle STEER ON/OFF button until STEER OFF is displayed in GUIDANCE VIEW tab.
- Operator out of seat for more than seven seconds.
- Track number is changed.

CZ76372,00001AD -19-01OCT10-1/1

AutoTrac Sugar Cane Harvester

Enabling System

To enable the system all the following criteria must be met:
- Vehicle has an Auto Trac capable steering controller (SSU).
- Auto Trac license activated (26 digit activation code).
- Tracking has been set up (see section SetUp Tracking).
- Tracking/guidance is ON.
- GPS signal status is present (SF2 or RTK).
- Park Brake is turned off.
- Steer Button set to on.

Activating System

CAUTION: While AutoTrac is activated, operator is responsible for steering at end of path and collision avoidance.

Do not attempt to turn on (Activate) AutoTrac system while transporting on a roadway.

IMPORTANT: Although the AutoTrac system can be activated when SF2 correction signal is confirmed, system accuracy may continue to increase after powering up the system.

NOTE: Resume switch location may vary depending on vehicle model and year. Press resume switch, Right foot pedal, or optional left hand command arm.

In order to activate the system the following criteria must be met:
- Ground drive controls are in forward and within 15 percent of each other.
- Forward vehicle speed is greater than 1.6 km/h (1 mph).
- Vehicle heading within 80 degrees of desired track.
- Machine is within 40 percent of track spacing.
- Operator is seated.

Deactivating System

CAUTION: Always turn off (Deactivate and Disable) AutoTrac system before entering a roadway.

To turn off AutoTrac from GUIDANCE VIEW tab, toggle STEER ON/OFF button until STEER OFF is displayed.



PC10471 —UN—31AUG07



PC10470 —UN—31AUG07

Foot Switch

AutoTrac system can be deactivated by the following methods:
- Moving either Ground Drive levers more than 10 degrees from the opposite control lever.
- Placing Ground Drive lever in neutral.
- Slowing to speeds less than 1.6 km/h (1 mph).
- Degradation of differential correction signal from SF2 to SF1 for longer than 3 minutes.
- Pressing the Steer On/Off button on the main run screen.
- Operator out of seat for more than 5 seconds.

CZ76372,00001AE -19-01OCT10-1/1

AutoTrac Universal

AutoTrac Universal

For instructions on operating AutoTrac Universal, see the AutoTrac Universal operator's manual.

CZ76372,00001AF -19-01OCT10-1/1

Original GreenStar Monitor

Compatible Systems

Press: MENU button >> ORIGINAL GREENSTAR MONITOR button

The following section explains operation of Original GreenStar Monitor software. Original GreenStar Monitor can be used to display information from controllers that are designed for use with original GreenStar display.

NOTE: The original GreenStar Monitor is only viewable as a full screen.

Compatible Systems

Original GreenStar Monitor application is compatible with following John Deere 2.5 v controllers:

- SeedStar Gen 1 Seed Monitor and Variable Rate Drive
- SeedStar Gen 2 Seed Monitor and Variable Rate Drive
- SeedStar Air Cart
- SprayStar
- Accu-Depth
- Original StarFire Receiver
- TCM
- European Drill

PC8663 —UN—05AUG05



PC12866 —UN—16SEP10



ORIGINAL GREENSTAR MONITOR button

- European Sprayer
- European Spreader
- European Wrapping Baler
- Rauch Axera Fertilizer Spreader
- Harvest Monitor (Except 70 Series Combines)
- Self Propelled Forage Harvester

CZ76372,0000170 -19-16SEP10-1/1

Operating Original GreenStar Monitor

IMPORTANT: If dual monitors are being used with an Original GreenStar Display on the system along with a GS3 display, the Original GreenStar Monitor application will not be available and will not appear on menu.

Once in Original GreenStar Monitor application, operator interface will function the same as the Original GreenStar Display. See vehicle or implement Operator's Manual for more information.

CZ76372,00000AD -19-09JUL10-1/1

Performance Monitor

The GS3 2630 display comes standard with Universal Performance Monitor (UPM), which provides productivity information such as vehicle speeds, acre counters, and fuel efficiency data. The information available to be displayed in UPM depends on the vehicle on which the display is installed. There may be slight differences between the values from UPM and the vehicle monitor due to rounding of decimals within UPM calculations.

30 Series Tractors

On 30 series John Deere tractors the GS3 2630 display will disable UPM and show Advanced Performance Monitor (APM) from the tractor TECU. APM is a feature of the tractor and is similar to UPM. Read your tractor Operator's Manual for information on APM.

Dual Display Operation

The GS3 2630 display maybe installed on the corner post of a John Deere vehicle that also has a display on the armrest running UPM. In this case, the values displayed by UPM on the corner post display will be sent from UPM on the armrest display. Therefore the values will be identical on both displays.

NOTE: Resetting UPM Totals on one display will also reset UPM Totals on the other display.

PC12867 —UN—16SEP10



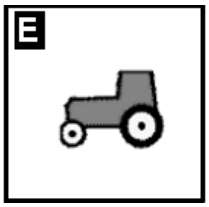
UPM Performance Monitor Icon

- Universal Performance Monitor will be denoted in the display menu with the UPM Performance Monitor Icon.

CZ76372,0000172 -19-16SEP10-1/2

- APM will be denoted in the display menu with the APM Performance Monitor Icon.

PC9046 —UN—17APR06



APM Performance Monitor Icon

CZ76372,0000172 -19-16SEP10-2/2

Performance Monitor Setup

Dual Display Setup

With both 2630 and GS3 Command Center installed, UPM data and recording source will be synchronized. For example, changing recording source to GreenStar on GS3 Command Center will change 2630 UPM recording source to GreenStar as well. Note that data sync will exhibit some noticeable delay.

This function allows users to choose the control source that engages the area and distance counters associated with implement working status. It presents multiple choices of control source based on vehicle configurations to allow user to choose from either automatically or manually engaging the area counter.

The three default control sources are:

- MANUAL
- Implement Switch
- AUTO

Depending on vehicle configurations, other possible control sources include (not limited to):

- GreenStar
- Front Hitch
- Rear Hitch

OUO6050,0001298 -19-20JUL10-1/1

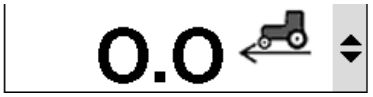
UPM (UNIVERSAL PERFORMANCE MONITOR) Functionality

NOTE: GPS radar speed will be shown under the regular radar speed icon in APM. No GPS option will display as the radar feed is designated by the radar wire feed connection behind the command center described later in this section.

Vehicle Speed

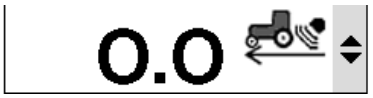
The operator will be able to view the vehicle speed and can select radar speed (if available), GPS speed (if available), or transmission wheel speed. The display readout will switch when below 0.3 kph to 0.29 and back to 1.1 when above 1.0 kph. The figures below show the vehicle speed icons.

PC9047 —UN—17APR06



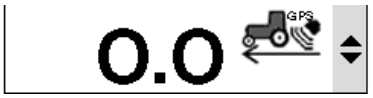
Wheel

PC9048 —UN—17APR06



Radar

PC9049 —UN—17APR06



GPS

CZ76372,00000BE -19-15JUL10-1/11

Front and Rear PTO RPM

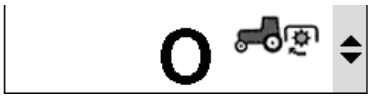
The user is able to view both the front and rear PTO RPM (if available). The data will be displayed and rounded to the nearest 10th's digit. This option is only available if the vehicle has the front and/or rear PTO option. The figures below show the PTO icons.

PC9050 —UN—17APR06



Front PTO

PC9051 —UN—17APR06



Rear PTO

CZ76372,00000BE -19-15JUL10-2/11

Wheel Slip

The operator is able to view the current wheel slip of the vehicle. Note that this feature will only be available if a radar sensor is installed. It will be displayed as a percentage calculated as the difference between the wheel speed and radar speed, divided by the wheel speed. The figure below shows the wheel slip icon.

PC9052 —UN—17APR06



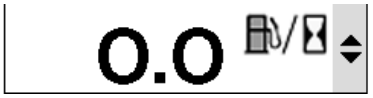
Wheel Slip

CZ76372,00000BE -19-15JUL10-3/11

Fuel Per Hour

If available from the vehicle network, the operator is able to view the instantaneous fuel flow in gal/h (or liters/h). The output value is a computation that factors desired fuel quantity (not measured), current engine speed, cylinder size of the engine, and fuel density. This will then give the operator an idea of what range to expect for consumption.

PC9053 —UN—17APR06



Fuel Per Hour

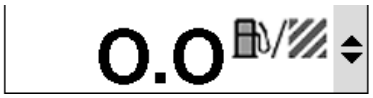
Continued on next page

CZ76372,00000BE -19-15JUL10-4/11

Fuel Per Area

The current fuel per area measurement (gal/area or liters/area) will be shown on the screen. The value is based on current fuel usage, implement/header width, and speed. The area counter is enabled when the arrow is in the down position. The figure below shows the fuel per area icon.

PC9054 —UN—17APR06



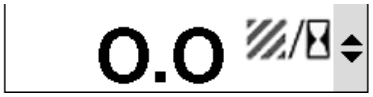
Fuel Per Area

CZ76372,00000BE -19-15JUL10-5/11

Instantaneous Productivity

Instantaneous Productivity is calculated from the vehicle speed and implement/boom/header width and is expressed in terms of area/hour. If recording is off, the area/hour value will be zero. The figure below shows the instantaneous productivity icon.

PC9055 —UN—17APR06



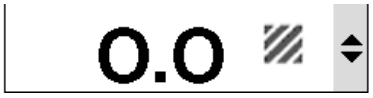
Instantaneous Productivity

CZ76372,00000BE -19-15JUL10-6/11

Area Counter

The operator is able to select an area counter. The counter can be reset by the operator in the totals page. The PM will use the current implement width setting, the speed (priority is GPS speed, radar speed, wheel speed), and the recording status to count hectares/acres. If recording is off, area will not accumulate. If the value exceeds 9999.9, then the counter will reset to zero. The figure below shows the area counter icon.

PC9056 —UN—17APR06



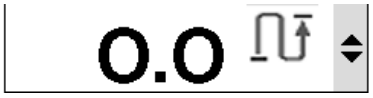
Area Counter

CZ76372,00000BE -19-15JUL10-7/11

Distance Counter

The user will be able to view and reset the distance counter. This counter will accumulate any time the vehicle is moving (regardless of recording status) and will use the same speed as the area counter to calculate the distance. The figure below shows the distance icon.

PC9057 —UN—17APR06



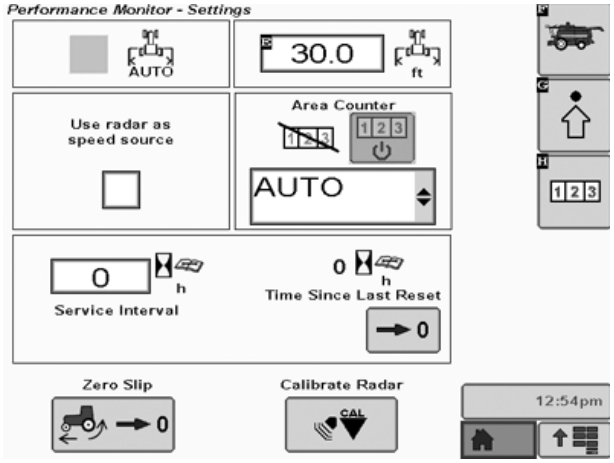
Distance Counter

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CZ76372,00000BE -19-15JUL10-8/11

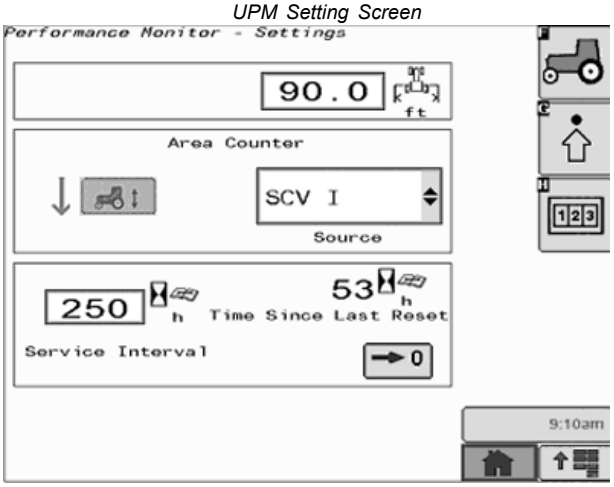
SETTINGS SCREEN

The setup screen of the PM application, shown, contains a number of major sections that include settings that the operator can adjust and/or calibrate. Each of these settings or calibration instructions are described in this section. Totals and Settings Screens will remain similar in both the APM and UPM applications. Resetting totals in APM mode will require the operator to depress and HOLD the reset button for 3 seconds.



PC12687 —UN—15JUL10

UPM Setting Screen



PC9076 —UN—17APR06

APM Setting Screen

CZ76372,00000BE -19-15JUL10-9/11

NOTE: If the vehicle that you are operating does not have radar make sure that the radar check box is not checked or inconsistent readings and alarms will be displayed.

Radar Connection

The operator is able to select/unselect a check box if the radar is directly connected to the display or not. This connection check box will NOT display when operating APM as it will automatically default to the radar feed via the connection behind the command center.

PC9095 —UN—17APR06



Radar Connection

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CZ76372,00000BE -19-15JUL10-10/11

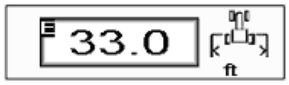
Implement/Header Width

The operator is able to enter and view the width of the implement/header. This value will remain in sync with the Field Doc application implement width. This parameter will be used by the PM for area and productivity calculations. The figure below shows the implement width icon.

Recording Sources for UPM / APM (Below)

The display will allow the operator to choose from an input list which source or function will indicate that recording is

PC9096 —UN—17APR06



Implement/Header Width

on or off. The PM will use this status to know when to engage the various measurements and this value will be in sync with the GreenStar Application.

CZ76372,00000BE -19-15JUL10-11/11

Recording Sources for UPM

The display will allow the operator to choose from an input list which source or function will indicate that recording is on or off. The PM will use this status to know when to engage the various measurements and this value will be in sync with the GreenStar Application.

Manual

PC9058 —UN—17APR06



Manual

When this item is selected, the operator can manually trigger and stop the recording button, located to the left of the recording source list. This choice is always available.

CZ76372,00000BF -19-15JUL10-1/8

Rear Hitch

This choice is only available if the vehicle is equipped with a rear hitch. CCD based vehicles with UPM Rear Hitch Recording is non-adjustable; In-work (recording on) below 70%, and out-of-work (recording off) above the 70% down threshold.

PC9059 —UN—17APR06



Rear Hitch

CZ76372,00000BF -19-15JUL10-2/8

Front PTO

This item is only available in the list if the vehicle is equipped with a Front PTO.

PC9060 —UN—17APR06



Front PTO

CZ76372,00000BF -19-15JUL10-3/8

Rear PTO

This item is only available in the list if the vehicle is equipped with a Rear PTO.

PC9061 —UN—17APR06



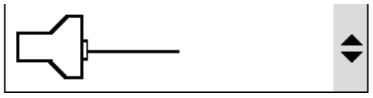
Rear PTO

CZ76372,00000BF -19-15JUL10-4/8

Implement Switch Closed

This item is always available and functions based on the position of the implement switch.

PC9062 —UN—17APR06



Implement Switch Closed

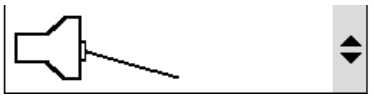
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CZ76372,00000BF -19-15JUL10-5/8

Implement Switch Open

This item is always available and functions based on the position of the implement switch.

PC9063 —UN—17APR06



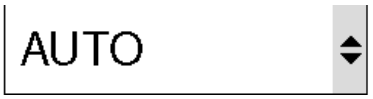
Implement Switch Open

CZ76372,00000BF -19-15JUL10-6/8

AUTO

If a John Deere implement is connected to the system that is broadcasting its work status, this item will be selected in this list and then the rest of the list will be disabled.

PC9064 —UN—17APR06



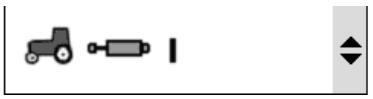
AUTO

CZ76372,00000BF -19-15JUL10-7/8

SCV I-VI

The user can assign any SCV to turn the recording source on. These selections will only show up if the vehicle has the corresponding SCV's. (Selective Control Valves for the Hydraulics)

PC9065 —UN—17APR06



SCV I-VI

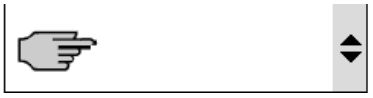
CZ76372,00000BF -19-15JUL10-8/8

Recording Sources for APM

Recording Sources for UPM / APM (Below) The display will allow the operator to choose from an input list which source or function will indicate that recording is on or off. The PM will use this status to know when to engage the various measurements and this value will be in sync with the GreenStar Application.

Manual

PC9058 —UN—17APR06



Manual

When this item is selected, the operator can manually trigger and stop the recording button, located to the left of the recording source list. This choice is always available.

CZ76372,00000C0 -19-15JUL10-1/6

Rear Hitch

This choice is only available if the vehicle is equipped with a rear hitch. APM Hitch Recording is an adjustable height setting in the command center.

PC9067 —UN—17APR06



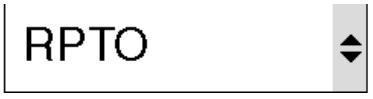
Rear Hitch

CZ76372,00000C0 -19-15JUL10-2/6

Rear PTO

This item is only available in the list if the vehicle is equipped with a Rear PTO.

PC9068 —UN—17APR06



Rear PTO

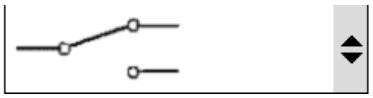
Continued on next page

CZ76372,00000C0 -19-15JUL10-3/6

Implement Switch

This item is always available and functions based on the position of the implement switch.

PC9069 —UN—17APR06



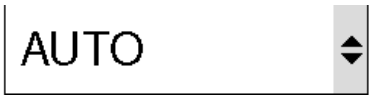
Implement Switch

CZ76372,00000C0 -19-15JUL10-4/6

AUTO

If a John Deere implement is connected to the system that is broadcasting its work status, this item will be selected in this list and then the rest of the list will be disabled.

PC9064 —UN—17APR06



AUTO

CZ76372,00000C0 -19-15JUL10-5/6

SCV I-VI

The user can assign any SCV to turn the recording source on. These selections will only show up if the vehicle has the corresponding SCV's. (Selective Control Valves for the Hydraulics)

PC9071 —UN—17APR06



SCV I-VI

CZ76372,00000C0 -19-15JUL10-6/6

Performance Monitor

Service Intervals

The operator is able to view and change the Service Intervals Field. When the operator changes the Service Interval, the Hours Since Last Service value will remain unchanged. If the operator sets the interval to zero, the Service Interval function will be disabled. The valid range is 0 - 990 hours. When 'Service Interval' – 'Hours Since Service' is less than 20 hours to next service, the operator will see an alarm saying "The vehicle is due for service in XX hours." After the alarm is cleared by the operator, it will not display again until the next power cycle. The first figure below shows the service interval input field, while the second figure shows the alarm box when the vehicle needs to be serviced.

PC9099 —UN—17APR06



Service Interval

CZ76372,00000C1 -19-15JUL10-1/2

Hours Since Last Service

The operator is able to manually reset the hours since service value, at which time an alarm will display confirming that the total should be reset. The first figure below shows the reset button for hours since service and the second shows the confirmation alarm. On CAN-Based vehicles, the operator will need to select and HOLD the reset button for 3 seconds. See list of CAN-Based vehicles in APM section.

PC9100 —UN—17APR06



Time Since Last Reset

CZ76372,00000C1 -19-15JUL10-2/2

PERFORMANCE MONITOR CALIBRATIONS

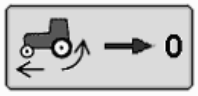
Percent Slip Zeroing

The operator is able to calibrate the wheel slip to zero on certain vehicles if radar is installed.

NOTE: Wheel slip zeroing and radar calibration are not possible on CAN based vehicles in the UPM. The only time the user will be able to perform wheel slip zeroing is if they are on a CCD vehicle.

When the operator initiates this function, the radar will be commanded to a new wheel speed calibration such that the % slip is now zero. If the system determines a calibration is not possible under the current operating conditions, then an alarm will be issued stating the calibration was not successful. The first figure below shows the zero slip button that when selected brings up the wheel slip calibration page. The remaining figures

PC9118 —UN—17APR06



Zero Slip Button

show the calibration pages for a successful or failed slip calibration.

NOTE: Vehicle must be traveling between 7 and 9 km/h (4.5 to 5.5 mph) before the zero slip button will be enabled

Reset % slip value by driving the vehicle on a hard level surface at a constant speed of 8 km/h (5 mph). Select and hold % slip switch for a minimum of 3 seconds to zero out slip. It is recommended to have an implement connected to the vehicle but not engaged in the ground (no load).

CZ76372,00000C2 -19-15JUL10-1/2

Radar Calibration

The operator is able to calibrate the radar through a series of steps, illustrated in the following figures.

- The operator initiates the calibration procedure by selecting the calibrate radar button.
- Measure out a 123 m (400 ft) course, and select “Start Calibration” at the beginning of the course.
- Drive the course and then hit stop at the end of the course.

NOTE: The radar cannot be calibrated unless on a CCD-Based vehicle. The only exception to this is if you directly hook the radar to the display via the Greenstar harness direct radar connection, then radar calibration is possible on a CAN-Based vehicle. See notes below for configuring radar on a CAN based tractor (See CAN-Based vehicle list in APM section).

PC9119 —UN—17APR06



Radar Calibration button

If the calibration was not successful, the operator will be taken back to the first calibration screen.

CZ76372,00000C2 -19-15JUL10-2/2

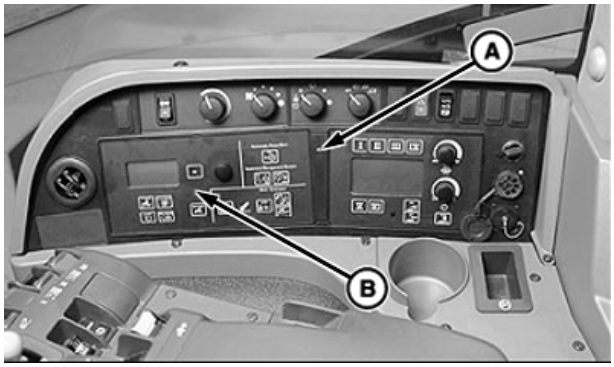
Configuring Tractor For DIRECT GPS or Ground Based Radar Feed (CAN-Based Vehicles ONLY)

NOTE: If you have any questions, your John Deere dealer can assist in field installing GPS or a radar device. CAN-Based tractors equipped with radar must be re-configured when switching to GPS receiver as the true ground speed input signal or vice versa for calibrating the ground based radar.

Certain CAN-Based vehicles will need CCU and TECU vehicle address configuration changes to enable radar operation. Please see your John Deere Dealer for service support.

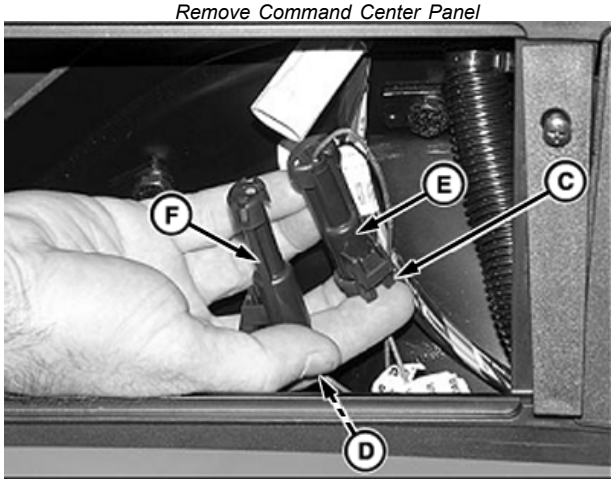
1. Remove screw (A) and Command Center (B).
2. Inside right-hand console locate console one wire lead marked ”GPS” and one marked ”Radar”.
3. Remove radar plug (C) from wiring connector (E).
4. Remove GPS plug (D) from dust cap (F).
5. Install GPS plug into connector and radar plug into dust cap.
6. Install Command Center with previously removed screw.

A—Screw
B—Command Center
C—Radar Plug
D—GPS Plug
E—Connector
F—Dust Cap



PC9120 —UN—17APR06

Remove Command Center Panel



PC9121 —UN—17APR06

Connect GPS side of Harness

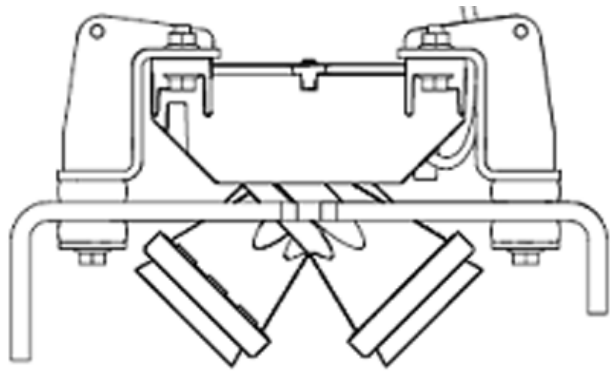
OUO6050,0000CDB -19-08NOV07-1/1

Dual Beam Radar Sensor Only (Automatic Calibration)

On tractors equipped with factory or dealer installed dual beam radars, it is not necessary to calibrate vehicle speed. Reset % wheel slip value if:

- Wheel speed and radar speed are not equal when slip is not present
- Wheel slip is displayed where slip should not be present
- Change tire size

Reset % slip value by driving tractor on a hard level surface at a constant speed of 8 kph (5 mph). Press and hold % Slip Switch (A) for a minimum of 3 seconds to zero out slip. It is recommended to have an implement connected to the tractor but not engaged in the ground (no load).



PC9122 —UN—17APR06

OUO6050,0000CDC -19-31OCT07-1/1

Calibrating Dual Beam Radar

1. Select Menu button.
2. Select Performance Monitor button.
3. Select Calibration Softkey.
4. Place check in Dual Beam Radar check box (A).
5. Select Calibrate (B).
   a. Dual Beam Radar Check Box.
   b. Calibrate Box

CZ76372,000027F -19-11JAN11-1/1

RADAR CONNECTION SIGNAL VALIDATION (UPM MODE ONLY)

1. Ensure the radar connected check box is checked in the setup screen. This check box will only display in UPM mode. In APM mode, radar feed is designated by the wire connection behind the command center denoted in the Configuring Tractor section.

PC9123 —UN—17APR06



Radar Connected Checkbox

The GS3 display will display the GPS radar feed value when connected. This value should be 57.42 during normal operation. To view this value once connected

CZ76372,00000B0 -19-15JUL10-1/7

2. Select the Clock Icon

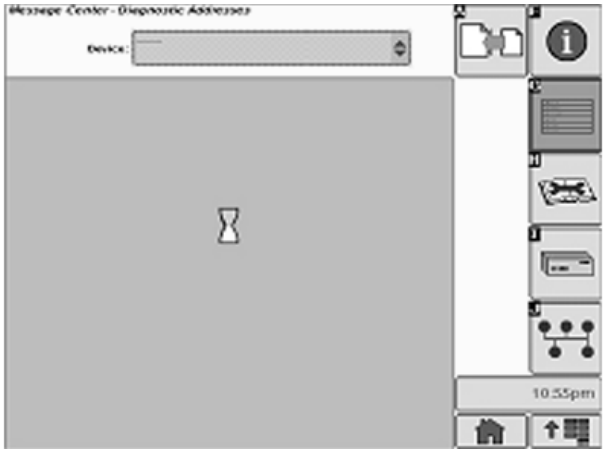
PC9124 —UN—17APR06



Clock Icon

CZ76372,00000B0 -19-15JUL10-2/7

3. Select Soft Key G



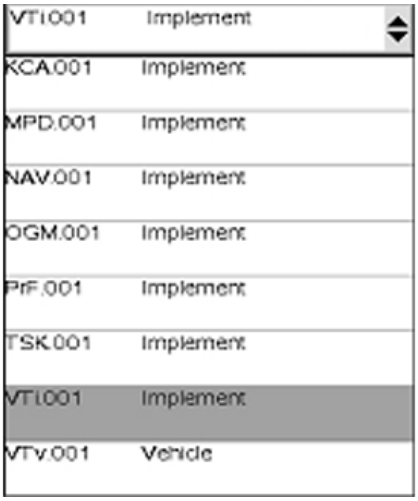
PC9125 —UN—17APR06

Softkey G

Continued on next page

CZ76372,00000B0 -19-15JUL10-3/7

4. Select VTi.001Implement in the drop down menu

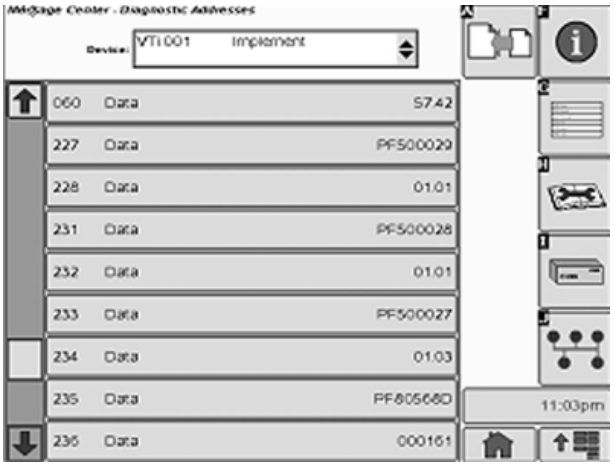


PC9126 —UN—17APR06

VTi.001Implement

CZ76372,00000B0 -19-15JUL10-4/7

5. Scroll down until you see Address 60



PC9127 —UN—17APR06

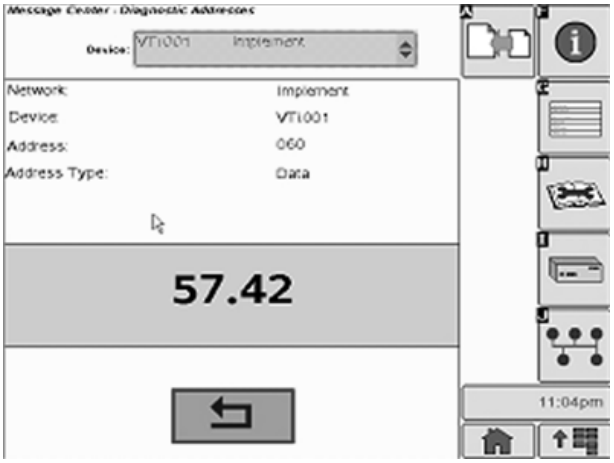
Address 60

Continued on next page

CZ76372,00000B0 -19-15JUL10-5/7

6. Address 60 should display 57.42 if radar is feeding from the iTC GPS receiver

If this value is 57.42, you are directly feeding GPS radar signal. Ground based radars will display approximately the same values when connected. If zero is displayed, no radar signal is being seen, GPS nor Ground Based.



PC9128 —UN—17APR06

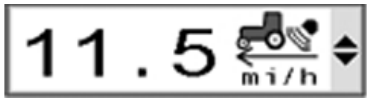
Display 57.42

CZ76372,00000B0 -19-15JUL10-6/7

If operating a CAN-Based vehicle and actual speed (not 0.000) is displayed in on the radar input screen, the vehicle IS seeing a direct radar signal, either GPS or Ground Based Radar, depending on the position of the radar signal wire connection located behind the command center.

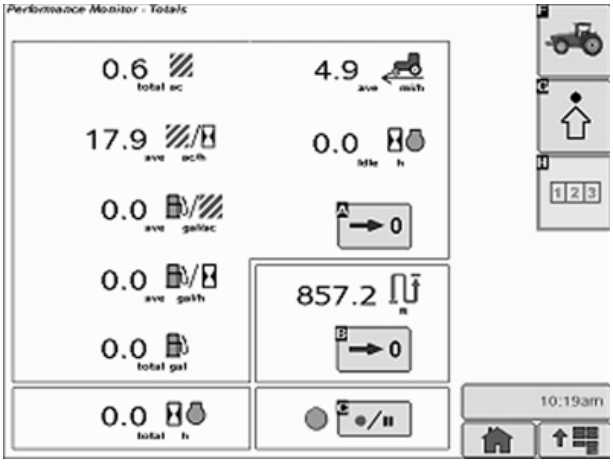
Certain CAN-Based vehicles will need CCU and TECU vehicle address configuration changes to enable radar operation. Please see your John Deere Dealer for service support.

PC9129 —UN—17APR06



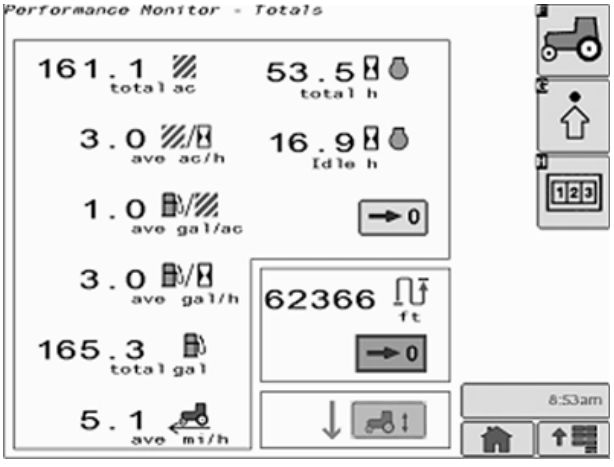
CZ76372,00000B0 -19-15JUL10-7/7

PERFORMANCE MONITOR TOTALS SCREEN



PC9130 —UN—18APR06

UPM Totals Screen



PC9131 —UN—17APR06

APM Totals Screen

The totals screen of the PM application contains three sections: the first contains the averages for many of the instantaneous functions from the main page, the second contains the total distance and a reset button, and the third contains the record button. All of the items will be stored in memory so the values will be retained between vehicle power cycles. Totals and Settings Screens will remain identical in both the APM and UPM applications.

Continued on next page

CZ76372,00000C3 -19-15JUL10-1/12

Total Area

This is the area covered by the implement since the last time this counter was reset. The area is calculated from the implement / header width, speed source (priority is GPS speed, radar speed, wheel speed), and the Recording Source set in Performance Monitor. If Recording is off, area will not accumulate. If the value exceeds 9999.9, the counter will reset to zero.

NOTE: The Implement Width does not change with Overlap Control like in GreenStar Totals, so the area value may be different from the value in GreenStar Totals.

PC9086 —UN—17APR06



Total Area

CZ76372,00000C3 -19-15JUL10-2/12

Average Productivity

Average productivity is calculated from the total area and total time accumulated while the vehicle is moving and recording since last reset.

PC9087 —UN—17APR06



Average Productivity

CZ76372,00000C3 -19-15JUL10-3/12

Average Fuel Per Area

Average fuel per area is calculated from the total fuel used and total area accumulated since last reset.

PC9088 —UN—17APR06



Average Fuel Per Area

CZ76372,00000C3 -19-15JUL10-4/12

Average Fuel Economy

PM will use the absolute fuel consumption and an internal timer that is incremented as soon as the engine is running since last reset to compute the average fuel per hour.

PC9089 —UN—17APR06



CZ76372,00000C3 -19-15JUL10-5/12

Total Fuel Used

If available from the vehicle, the operator will be able to view total fuel used in liters (or gallons) since last reset. The value can be manually reset by the operator.

PC9090 —UN—17APR06



Total Fuel Used

CZ76372,00000C3 -19-15JUL10-6/12

Average Operating Speed

The PM will maintain a value that represents the average operating speed of the machine when the machine is moving. These units will be expressed in terms of distance/time. The PM will calculate the value by dividing the total distance traveled by the vehicle (since the last reset) by the total engine hours accumulated when the vehicle is moving (since the last reset). Hours accumulated when the vehicle is sitting still will not contribute to these calculations.

PC9091 —UN—17APR06



Average Operating Speed

Continued on next page

CZ76372,00000C3 -19-15JUL10-7/12

Total Engine Hours

Engine hours are a value that represents the number of tenths of an hour that the vehicle's engine has run since last reset. Engine hours are only incremented when the engine RPM's are above 0.

PC9092 —UN—17APR06



Total Engine Hours

CZ76372,00000C3 -19-15JUL10-8/12

Total Idle Time

The operator will be able to view a value that represents how much time the vehicle has spent in the idle state. This value will increment any time the vehicle is running and is at idle. The vehicle is considered to be at idle if all of the following conditions are met:

- Engine RPM is above 0
- Vehicle is not moving based on radar, GPS, or wheel speed sensor
- Front and Rear PTO are disabled

PC9093 —UN—17APR06



Total Idle Time

- All SCV's are in neutral or float

If all of the conditions listed above are met, the application will count/record how much time is spent at idle.

CZ76372,00000C3 -19-15JUL10-9/12

Total Distance

The total distance counter will accumulate any time the tractor is moving (regardless of recording status or speed input). The distance counter that appears on the main screen is the same counter that appears on the totals screen.\

PC9094 —UN—17APR06



Total Distance

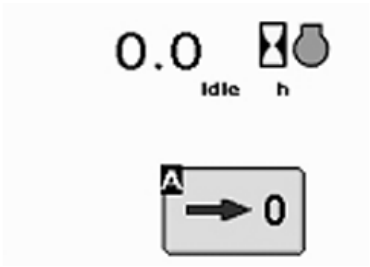
CZ76372,00000C3 -19-15JUL10-10/12

Resetting Totals

Many of the counters/totals can be reset by the operator. This capability will be accomplished via two different reset buttons. Alarms will display to confirm the actions before the totals are reset.

NOTE: When operating with APM, you must HOLD DOWN the reset button for 3 seconds to clear out the totals.

Reset Area Totals (this will reset all values on the totals page except distance)

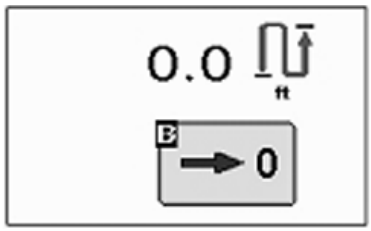


PC9132 —UN—18APR06

Reset Area Totals

CZ76372,00000C3 -19-15JUL10-11/12

Reset Distance (only resets the distance counter)



PC9133 —UN—17APR06

Reset Distance

CZ76372,00000C3 -19-15JUL10-12/12

ADVANCED PERFORMANCE MONITOR (APM)

This section covers only those additional functions that become available when operating APM

The APM is only available on CAN electronic based John Deere vehicles with a TECU controller which include the following:

Tractors	8030's	
	7030's	7020's
	6020's	
Combines	9060's	9050's

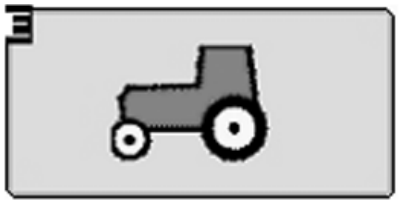
If the GS3 display is connected to one of the vehicles above, the UPM automatically becomes disabled and will not be a selectable option in the menu.

The APM application contains all functions of the UPM plus an additional 7 functions.

When the GS3 Display is connected to John Deere CAN electronic based vehicles the following real-time functions become available:

- Wheel and Radar or GPS Speed
- % Wheel Slip
- Instantaneous Productivity

PC9134 —UN—17APR06



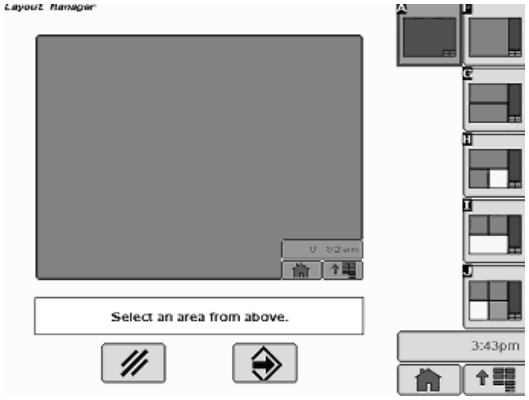
APM Icon

- Area Counter
- Distance Counter
- Engine Speed (RPM's)
- Rear Hitch Position
- System Voltage
- Engine Coolant Temp
- Engine Oil Pressure
- Hydraulic Oil Temp
- Transmission Oil Temp

Optional items based on vehicle platform and configuration are:

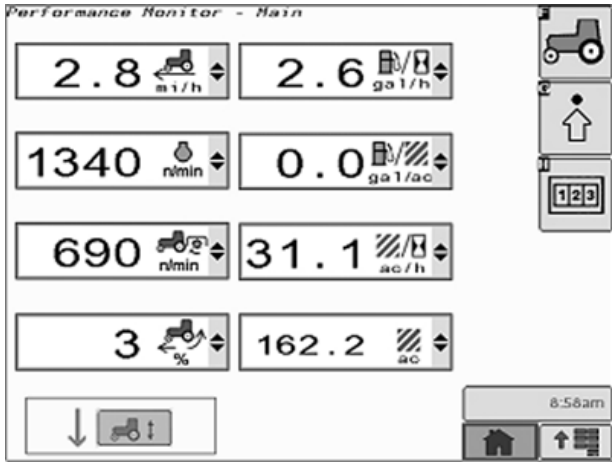
- PTO Status (Front & Rear)
- Fuel per Hour
- Fuel per Area
- Radar Connection and Calibration

CZ76372,00000B1 -19-15JUL10-1/3



PC9034 —UN—17APR06

Layout Option A



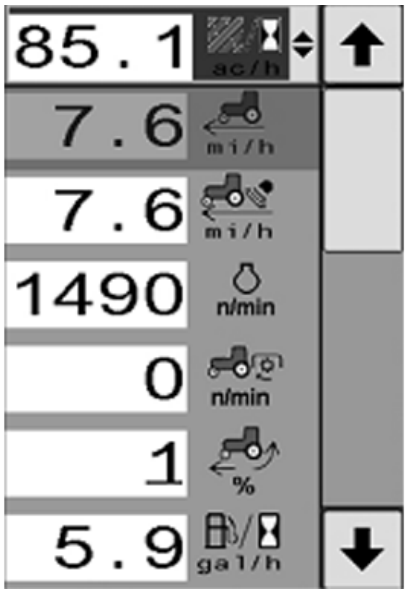
PC9135 —UN—18APR06

Run Screen for APM in Layout A

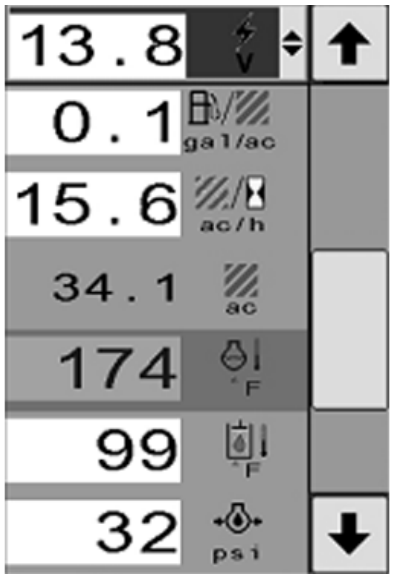
The APM is only available in layout manager option A as seen in the example image below. APM will not function in any other screen layouts currently.

Continued on next page

CZ76372,00000B1 -19-15JUL10-2/3



PC9136 —UN—18APR06



PC9137 —UN—18APR06

Drop down menus for APM selectable functions

NOTE: 8030's and 7030's will NOT display TIME TILL EMPTY in the GS3 display even though it is available in the tractor command center.

Totals and Settings Screens will remain identical in both the APM and UPM applications.



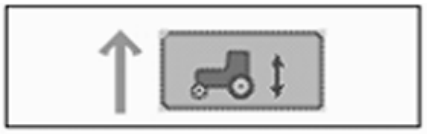
PC9138 —UN—18APR06

In Work / Out of Work Status Indicator

The arrow will change based on the recording source.

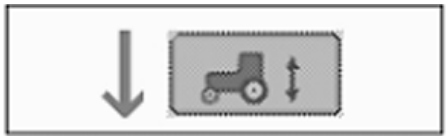
- UP Arrow—displayed when NOT working
- DOWN Arrow—displayed when working

PC9139 —UN—18APR06



Out of Work

PC9140 —UN—18APR06



In Work

Status Recording for SCV Flow on CAN-Based Vehicles

For SCV recording on CAN-Based vehicles, the SCV will only change recording status if the SCV paddle goes through a detent 'click', not by canceling flow.

If detent flow is set to some time less than 'C' continuous:

- Retract detent completed changes the status to "in-work"
- (If set to 5 seconds, state changes after 5 seconds of flow, not at start of flow)
- Extend detent initiated changes the status to "not in-work"

If detent flow is set to continuous:

- Retract detent initiated changes the status to "in-work"
- Extend detent initiated changes the status to "not in-work"

Each SCV remembers its status through power cycles.

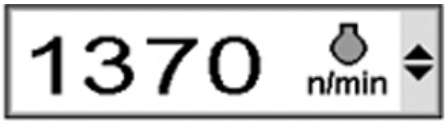
CZ76372,00000B1 -19-15JUL10-3/3

Additional Functions Available in APM Mode

PC9141 —UN—18APR06

Engine Speed

Speed of the engine in RPM



Engine Speed

OUO6050,0002313 -19-07OCT08-1/6

PC9142 —UN—18APR06

Engine Coolant Temperature

Temperature of the engine coolant in ºC or ºF



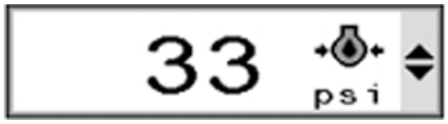
Engine Coolant Temperature

OUO6050,0002313 -19-07OCT08-2/6

PC9143 —UN—18APR06

Engine Oil Pressure

Pressure of engine oil in kPA or PSI



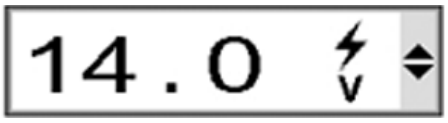
Engine Oil Pressure

OUO6050,0002313 -19-07OCT08-3/6

PC9144 —UN—18APR06

System Voltage

APM Battery system voltage



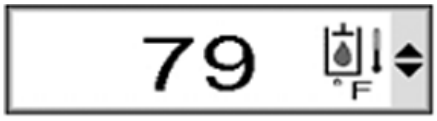
System Voltage

OUO6050,0002313 -19-07OCT08-4/6

PC9145 —UN—18APR06

Transmission Oil Temperature

The temperature of the transmission oil displayed in degrees ºC or degrees ºF



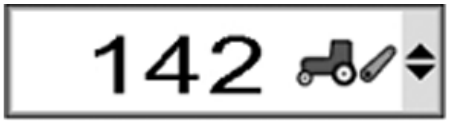
Transmission Oil Temperature

OUO6050,0002313 -19-07OCT08-5/6

PC9146 —UN—18APR06

Rear Hitch Position

APM Displays the current rear-hitch position and position limits



Rear Hitch Position

OUO6050,0002313 -19-07OCT08-6/6

Documentation

No GPS Documentation

If GPS is lost or there is no receiver a grower can still document and accumulate information or Totals. The software used an alternative speed source, wheel speed.

OUO6050,0000E54 -19-01SEP09-1/1

Turning Documentation On and Off

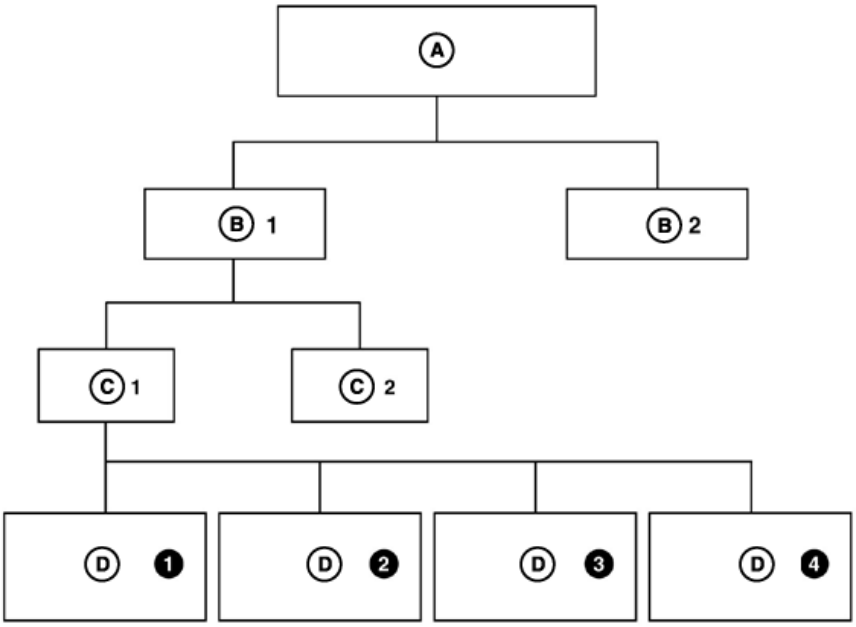
NOTE: Totals listed under TOTALS button are only calculated when documentation is turned on.

See DOCUMENTATION softkey in this section to turn on documentation.

To turn documentation off, for guidance only, go to RESOURCES/CONDITIONS softkey >> RESOURCES tab >>TASK. Change TASK to DOCUMENTATION OFF. All guidance screens and features are functional but no documentation data is recorded.

CZ76372,000017A -19-23SEP10-1/1

How Documentation Organizes Data



PC8867 —UN—02NOV05

A—FARM NAME **B—Field 1 and Field 2** **C—Task 1 and Task 2** **D—Operation 1-4**

Data Organization

GreenStar Basics and Pro documentation system organizes operation data as shown in chart. Each farm can have multiple fields, with each field there are multiple tasks and each task can have multiple operations. A task is any trip over field to perform a specific function. Each defined task can contain up to four operation choices. Available operation types are defined later in this section.

Product type, product name, rate, depth, height, seed type, or crop variety define each operation.

For example:

Task—Pre-emerge Spraying

Operation—Product Application

OUO6050,00022BF -19-20NOV06-1/1

DOCUMENTATION softkey

IMPORTANT: When setting up the display with vehicle key in the accessory position (power on, engine off), turn key to OFF position for 20 seconds BEFORE starting the vehicle. Setup data is saved to the internal memory before operating which protects it from being lost.

If the vehicle is running during setup and programming, turn off the vehicle with key in the OFF position and wait 30 seconds before restarting. All data is saved to the internal memory preventing it from being lost.

DO NOT turn the key to the start position directly from the accessory position. The reduction in voltage during the starting phase could result in a loss of all setup data.

The documentation screen allows the setup of operations and specific details that are associated with those operations.

1. Select RESOURCE/CONDITIONS softkey.
2. Select or Enter Client, Farm, Field, and Task.
3. Select EQUIPMENT softkey.
4. Setup recording source and implement width.
5. Select DOCUMENTATION softkey.
6. Choose the type of operation and the details of each operation.

   The name of the operation appears on the documentation tabs.

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10



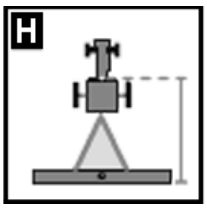
GREENSTAR 3 PRO button

PC8676 —UN—05AUG05



RESOURCES/CONDITIONS softkey

PC8677 —UN—05AUG05



EQUIPMENT softkey

PC8678 —UN—05AUG05



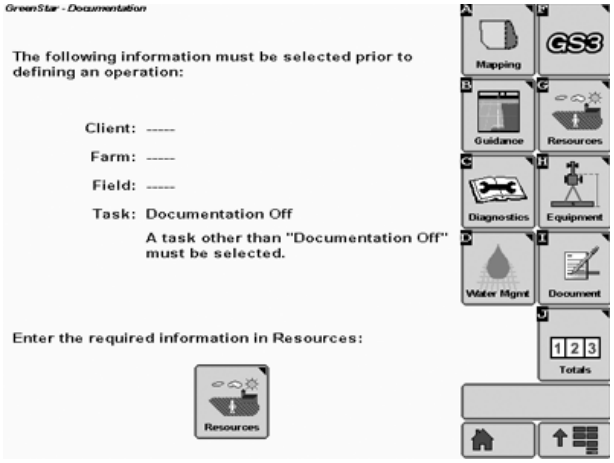
DOCUMENTATION softkey

Continued on next page

Client, Farm, Field, and Task Setup

NOTE: See GreenStar General setup, RESOURCES/CONDITIONS softkey for more information on setting up Client, Farm, Field, and Task.

If Client, Farm, Field, or Task are not selected, the Documentation screen displays the information that is still required.



PC13625 —UN—14JUN11

Machine and Implement Setup

NOTE: See GreenStar General setup, MACHINE/IMPLEMENT softkey for more information on setting up Machine and Implement.

NOTE: For some Task Controller supportive implements the operation type, equipment type and implement width are set automatically (when supported by the implement).

CZ76372,0000328 -19-14JUN11-2/2

Field and Task Notes

Press: MAIN MENU >> GREENSTAR 3 PRO >> RESOURCES/CONDITIONS softkey

Notes can be used to provide detailed information to field operators, logging notes while in field, or gathering and reporting other information like soil sampling and field scouting.

Field notes are specific to a particular field and will only show for the currently selected field.

Task notes are organized by task and notes for a particular task are common across all clients, farms and fields.

PC8676 —UN—05AUG05



RESOURCES/CONDITIONS softkey

CZ76372,00002D3 -19-15APR11-1/1

Operations

Select: MENU > GREENSTAR 3 PRO > DOCUMENTATION > NEW tab

Four operations per task are allowed for all tasks other than Harvest. The Harvest task only allows the Harvest operation. Listed are available operations and details that can be set up within those operations.

Tillage

- Type
- Depth

Planting and Seeding

- Seed Type
- Seed Brand
- Varieties
- Target Rates*
- Rate Units
- Application Method
- Depth
- Tillage Practice
- Lot Number
- Product Details (For Europe Only)

*Rate comes from control unit on selected control units

Product Application

- Product(s)/Product Rate
- Carrier/Carrier Rate*
- Tank Mix Name (Optional)
- Application Method
- Height
- Product Details (For Europe Only)

*Rate comes from control unit on selected control units

Harvest

- Crop Type
- Seed Brand
- Variety
- Load Name
- Load Number
- Load Destination
- Residue management

NOTE: If using Harvest Doc or Harvest Monitor in a 70 Series combine, all Harvest Monitor functions are accessed through the armrest CommandCenter. Please consult the 70 Series Operator Manual for more detailed information on using the CommandCenter

Water Management

- Type

NOTE: See your SurfaceWater Pro Operator's Manual for more information.

Other

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10

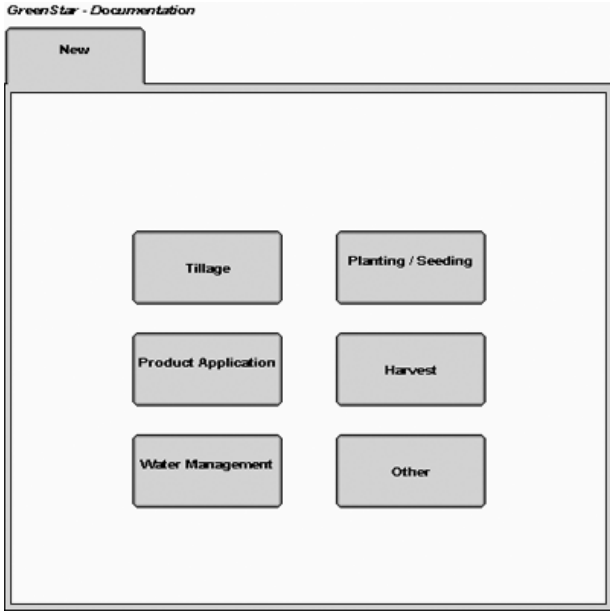


GREENSTAR 3 PRO button

PC8678 —UN—05AUG05



DOCUMENTATION button



PC12874 —UN—23SEP10

- Type
- Name

Automatically Generated Operations

Some operations are automatically created when the display is connected to certain machines and a client, farm, field, and task are defined.

Example: When a SeedStar Gen II planter is connected to the display (and a client, farm, field, and task are defined) a seeding operation is automatically created. The details of the operation will still need to be defined.

Continued on next page

Limited Availability of Operations

Some operations WILL NOT be available when display is attached to certain machines and implements.

Example: When Harvest Monitor from a John Deere 50, 60, or 70 Series Combine (NA) or 9000i series (Europe) is connected to the display only the harvest operation will be available.

CZ76372,0000177 -19-23SEP10-2/2

Controllers

When connected to controllers below, recording on/off will be controlled automatically:

- John Deere 1990 CCS
- John Deere Harvest Monitor
- John Deere SeedStar for Air Carts
- John Deere SeedStar Monitors or Variable Rate Drive for Planters
- John Deere SprayStar Gen 4
- Raven 440, 450, 460, 660
- SideKick
- GreenSeeker
- Rawson Accu-Rate and Accu-Plant
- New Leader Mark III Mark IV
- Dickey-john Seed Manager
- Vanguard PIC Seed Monitor
- John Deere 800i Series sprayer
- ISOBUS Task Controller compliant implements

Once setup properly, the only operational changes needed for documentation are turning recording on/off, changing details within the operation, and changing Client/Farm/Field as needed.

If product details change while operating, go to DOCUMENTATION softkey and select tab for affected operation.

To remove a controller, you must select the remove button from the 3rd-Party controller setup page.

NOTE: 3rd-Party controllers are controllers using RS232 connection (Field Doc Connect) and ISOBUS compliant controllers supporting Task Controller functionality.

CZ76372,00002B3 -19-30MAR11-1/1

Remove, Disable, and Enable Operations

User created operations will have a Remove button in the lower left hand corner of the operations page. Selecting this button, and accepting the Remove Operation popup, will remove the operation from Documentation and data will no longer be recorded for that operation.

PC13217 —UN—30MAR11



Remove Operation

CZ76372,00002B7 -19-30MAR11-1/2

When operations are created by controllers, the button in the lower left hand corner changes to an Enable/Disable button. This allows the operator to disable recording of certain operations while still recording others if needed.

Pressing the Disable button will grey out the options on the screen and they will remain greyed out until the button is pressed again to Enable Operation.

PC13218 —UN—30MAR11



Disable Operation

PC13219 —UN—30MAR11



Enable Operation

CZ76372,00002B7 -19-30MAR11-2/2

Using Documentation with Planters

NOTE: If you are connected to a John Deere SeedStar Planter, a Planting/Seeding tab is automatically created.

If you are not connected to a John Deere SeedStar planter make sure you have selected the correct planter and number of rows on the equipment button.

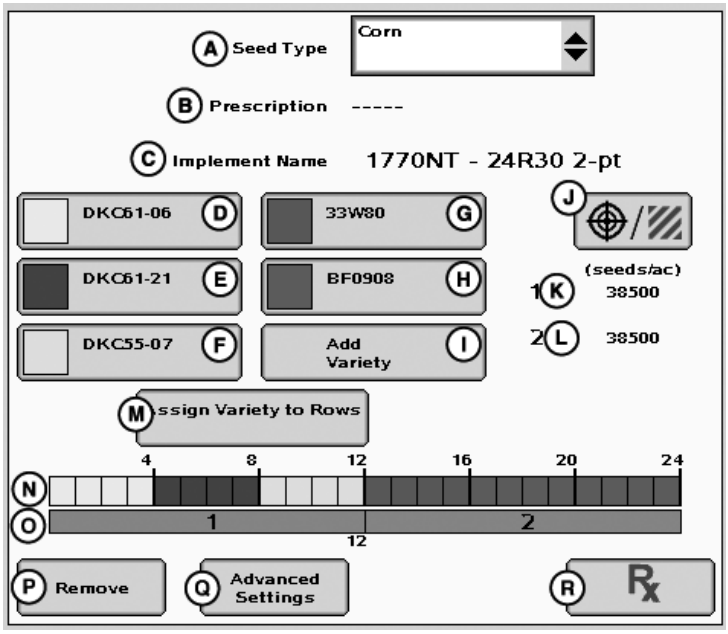
PC10857TZ —UN—30MAR10



Planting/Seeding Tab

Continued on next page

CZ76372,0000121 -19-28SEP10-1/17



PC10857UA —UN—11MAY10

A—Choose Seed Type
B—Displays Prescription if Prescription is being used
C—Implement Name
D—Variety 1
E—Variety 2
F—Variety 3
G—Variety 4
H—Variety 5
I— Variety 6
J—Input Population on NON-SeedStar2
K—Displays Populations — Drive Section 1
L—Displays Populations — Drive Section 2
M—Assign Varieties to Rows
N—Individual Planter Rows
O—Drive Selections
P—Remove Tab
Q—Advanced Settings
R—Prescriptions

NOTE: Before setting Documentation, make sure the planter is fully set up and connected to the tractor. See your planter operator's manual for procedure.

Seed Type Selection

Select seed type from drop down box (A).

When choosing the seed type from the drop down, if the list is too long, the user may uncheck and retire seed types using APEX to simplify future seed selection.

Implement Selection

The implement name is not pre-populated. If using a John Deere SeedStar planter, only number of rows will be automatically populated.

Set up the implement using the Equipment Softkey "H" before setting up operation. MENU > GREENSTAR > EQUIPMENT "H". If this step is not taken, you will be required to enter setup information twice.

Continued on next page

CZ76372,0000121 -19-28SEP10-2/17

Variety Selection

The operator has the ability to document up to six varieties at one time.

Select Add Variety

Select from the drop down list of enter seed Brand (A) (Optional).

Select from the drop down list of enter seed Variety (B).

Select or allow automatic selection of the color that will represent the variety on the display and map (C).

NOTE: It is possible to manually select the same color for two or more varieties. Documentation will still occur for each individual variety, however the map will paint the colors that were chosen will make visual variety separation difficult.

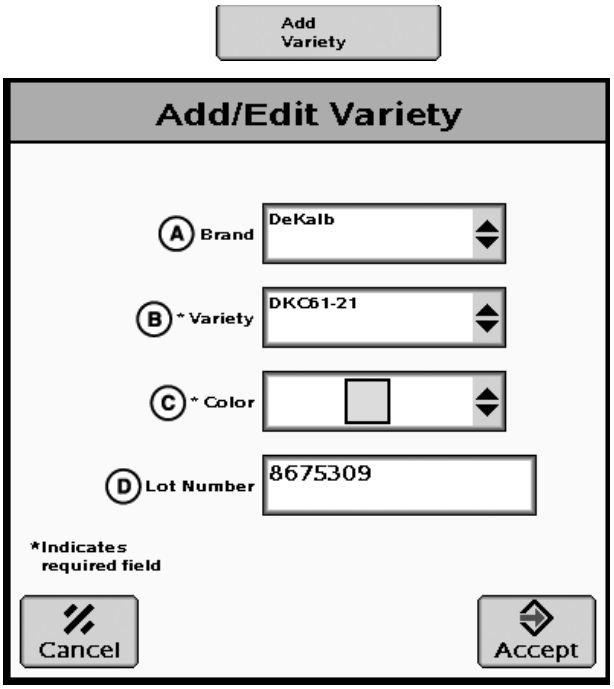
Select and then enter the Lot Number using the key pad (D). (Optional)

Select ACCEPT.

NOTE: If six varieties have already been entered, entering a seventh variety will replace the first variety entered. This process will repeat for each new variety past six.

A—Brand
B—Variety
C—Color
D—Lot Number

PC10857UB —UN—30MAR10



PC10857UC —UN—11MAY10

CZ76372,0000121 -19-28SEP10-3/17

Removing Varieties

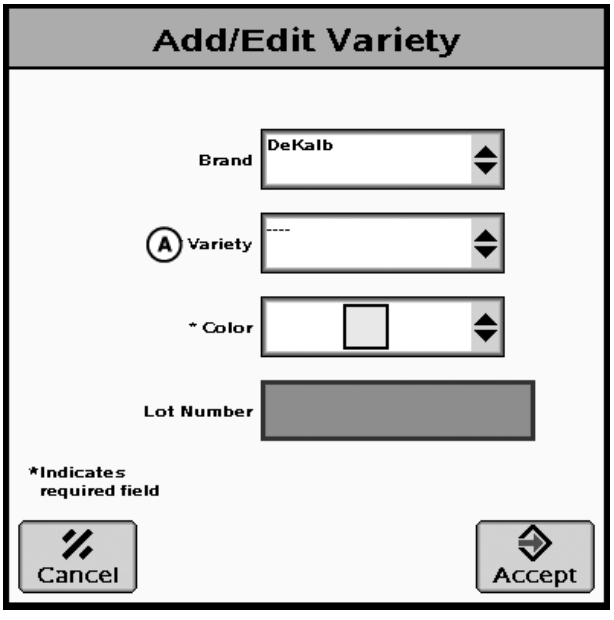
Once a variety has been entered it cannot be deleted or edited using the GreenStar Display. However, it is possible to remove a variety from view on the display.

Choose the variety you wish to remove from view.

From the variety drop down (A) , select the entry with the dashes.

Select Accept.

A—Variety drop down menu



PC10857UD —UN—30MAR10

Continued on next page

CZ76372,0000121 -19-28SEP10-4/17

Assign Varieties to Rows

The operator may assign a variety to any number of row units, in any configuration up to six varieties may be chosen to document for any one planter

Select Assign Variety to Rows

Choose the variety that is to be assigned.

NOTE: Assigning varieties to rows will begin with Row Unit 1 on the left and continue in order to end of the planter on the right. As with any implement, right and left are determined as sitting in the seat, direction of travel when the implement is working.

Choose the End Row.

NOTE: The end row is the row in which the variety chosen is to stop. The row entered is included.

Assign Multiple Varieties

If multiple varieties are to be assigned select the page forward soft key.

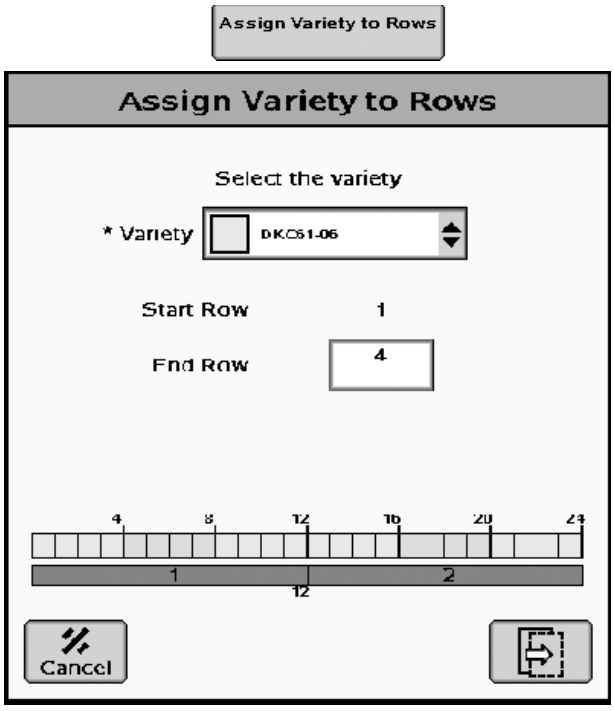
Choose the next variety to be assigned.

Choose the end row. Notice that the start row is the row after the last end row. Example: Variety 1 was assigned to rows 1 through 4, page forward is pressed, the next start row will be 5.

Repeat this process until all rows of the planter that are dropping seed are assigned the correct variety.

If a row will not be planting, you must select and assign, Row Not Planting from the drop down list.

PC10857UE —UN—30MAR10



PC10857UF —UN—30MAR10

If a change needs to be made to a previous row assignment, pressing the page back key allows editing to occur to an earlier row variety.

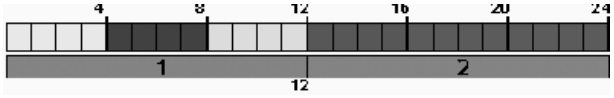
CZ76372,0000121 -19-28SEP10-5/17

Several examples of variety assignments are as follows:

1/2 Planter 3 Varieties

1/2 Planter Single Variety

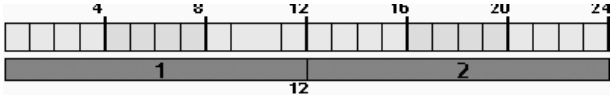
PC10857UG —UN—30MAR10



CZ76372,0000121 -19-28SEP10-6/17

3 Varieties with the middle variety spanning the disconnect

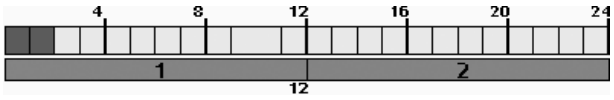
PC10857UH —UN—30MAR10



CZ76372,0000121 -19-28SEP10-7/17

5% Refuge with 4 contiguous rows

PC10857UI —UN—30MAR10

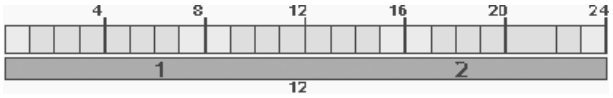


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CZ76372,0000121 -19-28SEP10-8/17

Seed Corn planted in a 6 female, 2 male configuration

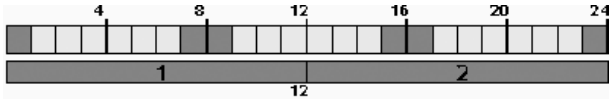
PC10857UJ —UN—30MAR10



CZ76372,0000121 -19-28SEP10-9/17

Seed corn planted with male rows set to NOT PLANTING

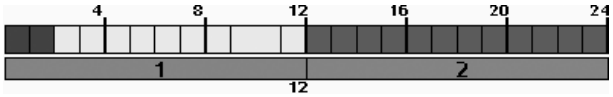
PC10857UK —UN—30MAR10



CZ76372,0000121 -19-28SEP10-10/17

5% refuge with 4 contiguous rows and 1/2 planter one variety and 1/2 planter second variety

PC10857UL —UN—30MAR10



CZ76372,0000121 -19-28SEP10-11/17

Population (Seeds/Acre)

If using a John Deere SeedStar planter, this number is set using that monitor. This is also true for any compatible controller installed.

If using a non John Deere SeedStar planter, the target rate button is active on the GS3 display.

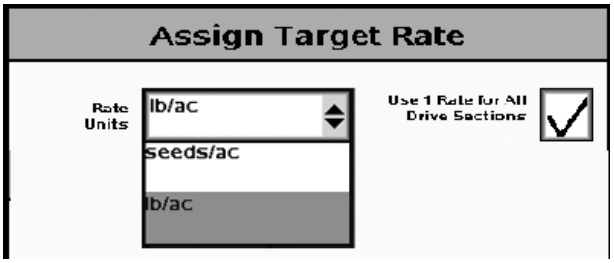
PC10857UO —UN—31MAR10



Select Target Rate Button

CZ76372,0000121 -19-28SEP10-12/17

Select Rate Units



PC10857UP —UN—11MAY10

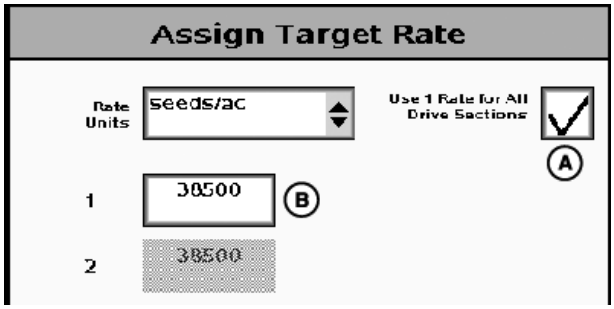
Continued on next page

CZ76372,0000121 -19-28SEP10-13/17

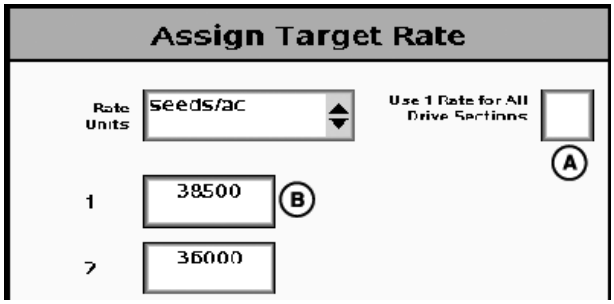
Select the target rate box (B) and enter the desired number on the key pad. If using a multiple drive planter check the box (A) to assign the target rate for each drive section on the planter. If multiple targeted rates are desired, un check box (A) and assign each drive section a targeted rate as performed on the first.

A—User 1 Rate for All Drive Selections checkbox

B—Target Rate



PC10857UR —UN—31MAR10



PC10857US —UN—31MAR10

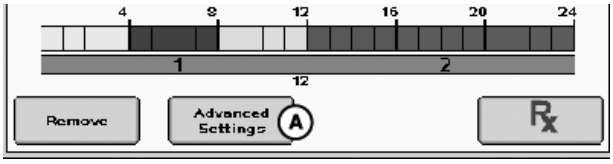
CZ76372,0000121 -19-28SEP10-14/17

Advanced Settings (Optional)

The advanced settings softkey allows the user to provide more information about the operation that is going to be recorded. This information will be available in APEX for later analysis.

Select Advanced Settings (A).

PC10857UT —UN—31MAR10



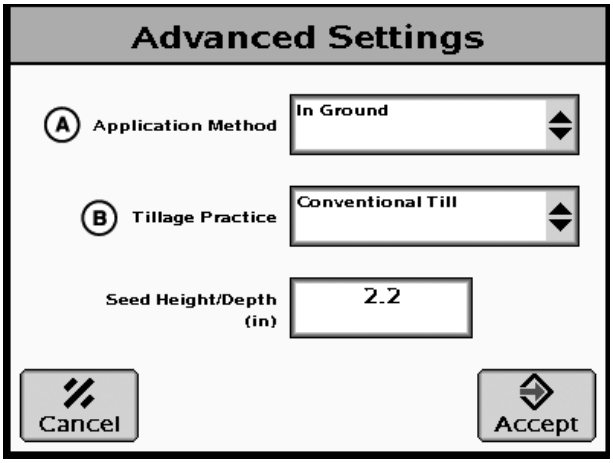
A—Advanced Settings button

Continued on next page

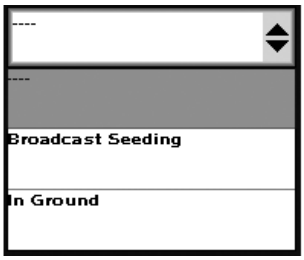
CZ76372,0000121 -19-28SEP10-15/17

Select Application Method (A).

Select Tillage Practice (B).

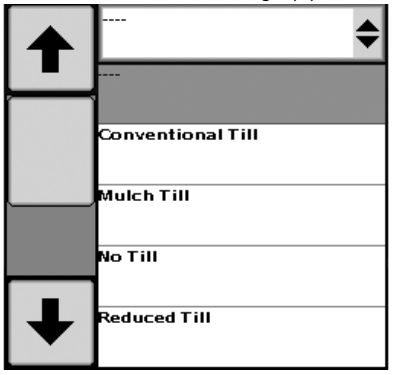


PC10857UU —UN—31MAR10



PC10857UV —UN—31MAR10

Advanced Settings (A)



PC10857UW —UN—31MAR10

Tillage Practices (B)

CZ76372,0000121 -19-28SEP10-16/17

Enter seed height/depth.

PC10857UX —UN—31MAR10



CZ76372,0000121 -19-28SEP10-17/17

Using Documentation with Seeder/Air Carts

NOTE: Before setting up Documentations ensure SeedStar Air Cart is setup, See SeedStar Air Cart Operator's Manual for procedures.

When using a John Deere Air Cart, each tank will be represented by an operation.

Two Tank Cart: The far left tab will always represent the front tank. The second tab will represent the rear tank on a two tank cart.

Three Tank Cart: The far left tab represents the front tank. The second tab represents the middle tank. A third tab will appear for the rear tank.

Fill out each operation for each tank even if applying the same product from two or more tanks.

All aircart tanks will be represented by an operation tab, even if they are turned off. The target rate will be displayed as 0 for tanks that are turned off.

NOTE: Before setting up Documentation, make sure the Air Cart is fully set up and connected to the tractor. See your aircart operator's manual for procedure.

Seed Type Selection

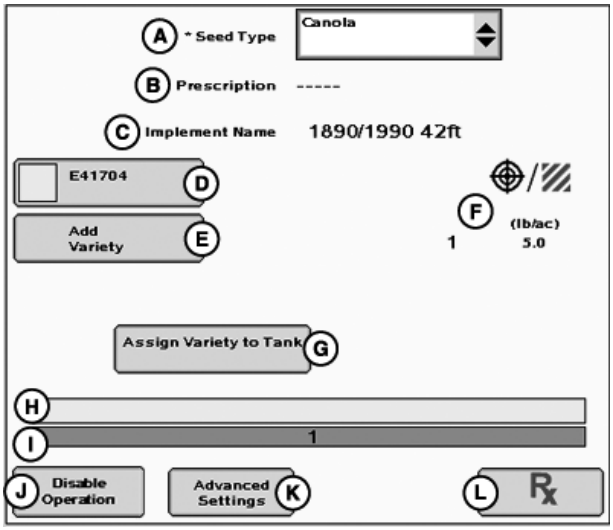
Select seed type from drop down box (A).

When choosing the seed type (A) from drop-down menu, if the list is too long, the user may check and retire seed types using Apex to simplify future seed selection.

Implement Selection

The implement name is not pre-populated. If using a John Deere Aircart, only number of tanks and sections will be pre-populated.

Set up the implement using the EQUIPMENT button before setting up operation.



PC13220 —UN—30MAR11

A—Select Seed Type
B—Displays Name of Prescription (if chosen)
C—Implement Name
D—Variety Entered
E—Tab Used to Add Variety
F—Target Rate (If using SeedStar2, this is set on that monitor) (If using non-Deere, you can enter target rate here
G—Assign Variety to Tank
H—Bar Color indicates Variety Chosen
I— Section Variety is Assigned To
J—Disable Operation Button
K—Advanced Settings
L—Allows Operator to Apply Prescription

Select: MENU > GREENSTAR > EQUIPMENT

If this step is not taken, you will be required to enter setup information twice.

Continued on next page

CZ76372,00002B8 -19-30MAR11-1/8

Variety Selection

The operator has the ability to enter six varieties but will only be able to document one variety at one time per tank.

Select: ADD VARIETY button.

Select from the drop-down menu or enter SEED BRAND (A) (Optional).

Select from the drop-down menu or enter SEED VARIETY (B).

Select or allow automatic selection of the color that will represent the variety on the display and map. (C)

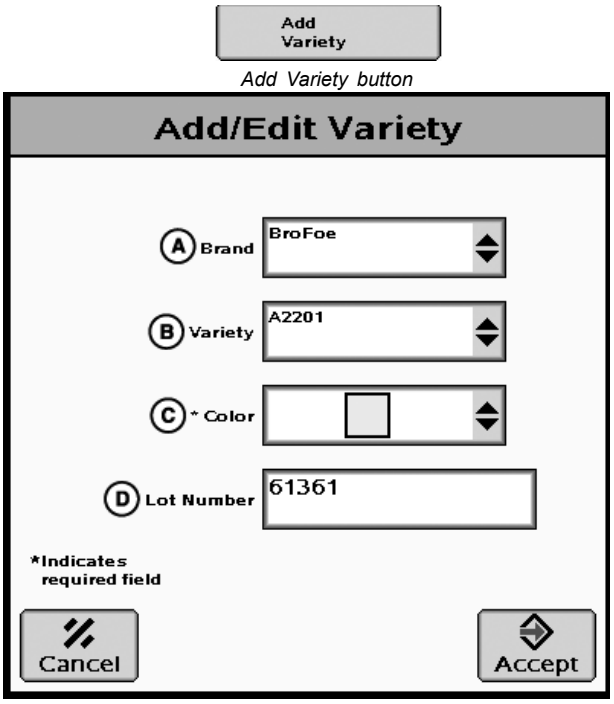
NOTE: It is possible to manually select the same color for two of more varieties. Documentation will still occur for each individual variety however the map will paint the color chosen.

Select and then enter the Lot Number using the keypad (D) (Optional).

Select the accept button.

A—Brand
B—Variety
C—Color
D—Lot Number

PC10857UZ —UN—31MAR10



Add Variety button

PC10857VA —UN—12MAY10

CZ76372,00002B8 -19-30MAR11-2/8

Remove Varieties

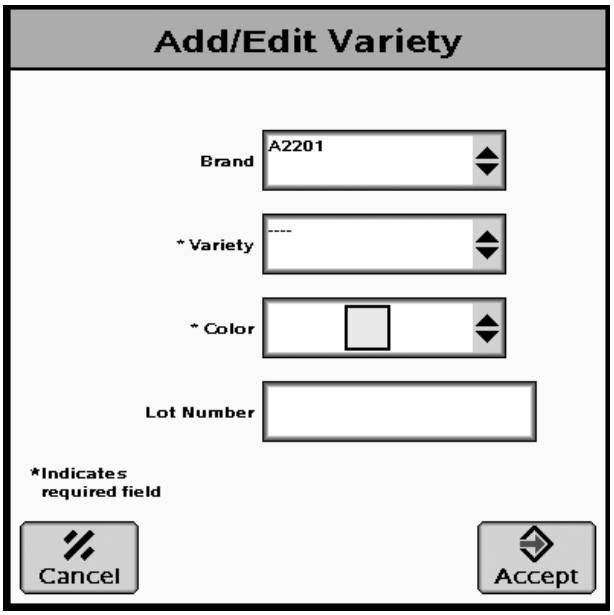
Once the variety has been entered it cannot be deleted or edited using the GreenStar display. However, it is possible to remove a variety from view on the display.

Choose the variety you wish to remove from view.

From the variety drop-down menu, select the entry with the dashes.

Select Accept

Although the variety is removed from view, it may still be chosen at a later date for documentation.



PC10857VB —UN—31MAR10

Continued on next page

CZ76372,00002B8 -19-30MAR11-3/8

Assign Variety to Tank

For tanks configured for seeding the operator may assign a variety to each tank of the aircart.

Select Assign Variety to Tank

Choose the variety that is to be assigned.

Select Accept.

PC10857VC —UN—31MAR10



PC10857VD —UN—31MAR10



CZ76372,00002B8 -19-30MAR11-4/8

Population (Weight/Acre)

If using a John Deere Aircart, this number is set using that monitor. This is also required when any compatible controller is connected.

If using a non-John Deere Aircart that does not have a controller reporting to that display, the target rate button is active on the GS3 display.

PC10857VE —UN—31MAR10



Target Rate button

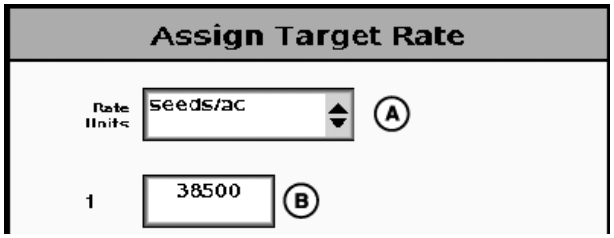
Select Target Rate button.

CZ76372,00002B8 -19-30MAR11-5/8

Select Rate Units (A).

Select the target rate (B) and enter the desired number on the key pad.

A—Rate Units **B—Target Rate Box**



PC10857VF —UN—31MAR10

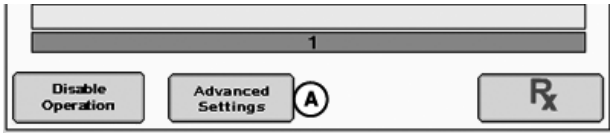
CZ76372,00002B8 -19-30MAR11-6/8

Advanced Settings

The advanced settings softkey allows the user to provide more information about the operation that is going to be recorded. This information will be available in APEX for later analysis.

Select Advanced Settings. (A)

PC13221 —UN—30MAR11



A—Advanced Settings button

Continued on next page

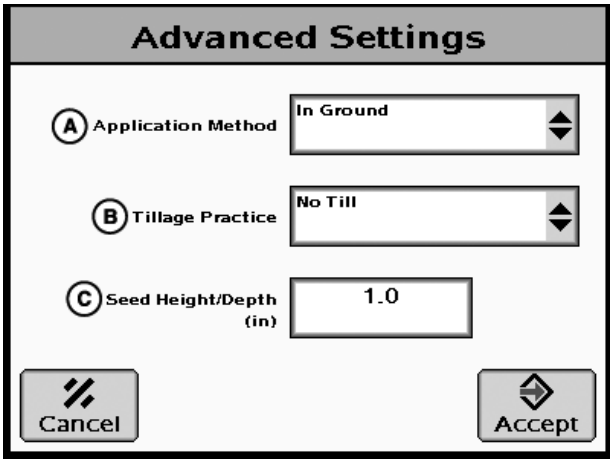
CZ76372,00002B8 -19-30MAR11-7/8

Select Application Method (A).

Select Tillage Practice (B).

Enter Seed Height/Depth (C).

A—Application Method
B—Tillage Practice
C—Seed Height/Depth



PC10857VH —UN—31MAR10

CZ76372,00002B8 -19-30MAR11-8/8

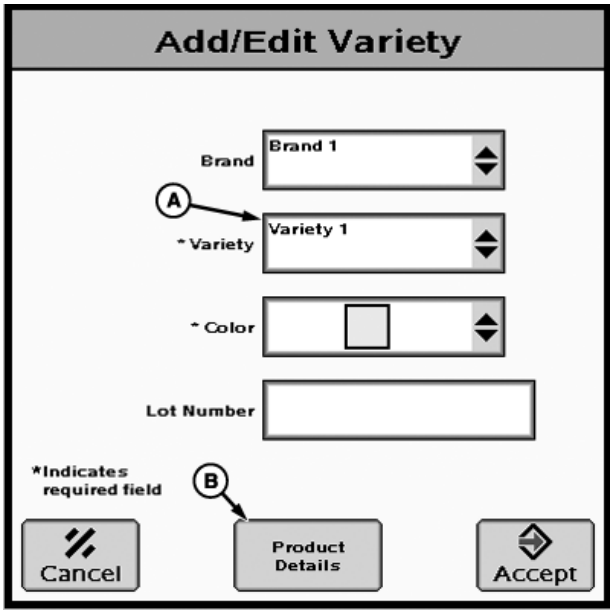
Seeding Product Details—Europe Only

The Product Details function allows documentation and communication of related information between desktop software and GS3 for products like chemicals, fertilizer and crop.

Product Details are only available for the Operations "Planting / Seeding" and "Product Application". Planting / Seeding is supported by seeder.

NOTE: The GreenStar Seeder/ Sprayer/ Spreader Pro (Universal) activation enables the Product Details function. Product Details isn't available in all countries.

1. If Product Details button (B) is grayed out, define Variety (A) first.
2. Press Product Details button (B).
3. Product details screen will appear.



PC12870 —UN—22SEP10

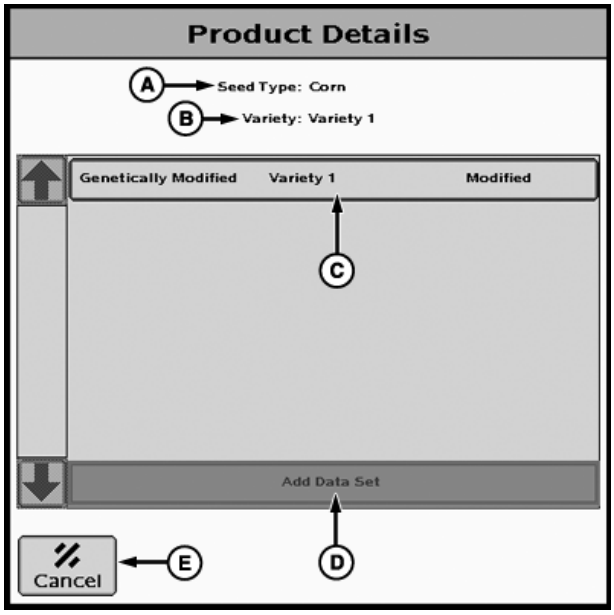
Continued on next page

CZ76372,0000178 -19-22SEP10-1/3

NOTE: Max. 25 entries could be added.

To add a detail, press (D). This will open the Product Details Entry screen.

A—Seed Type
B—Variety
C—Button to change or delete a data set
D—Button for new data set
E—Cancel, Back to prior page



PC12871 —UN—22SEP10

Continued on next page

CZ76372,0000178 -19-22SEP10-2/3

Information Types available for Planting / Seeding:

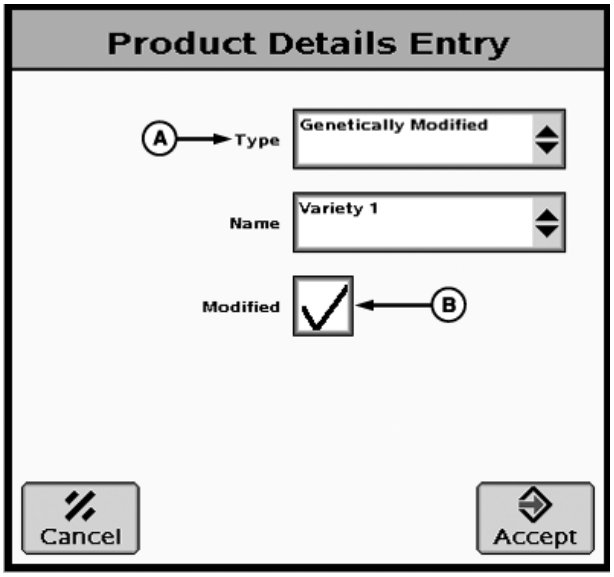
- Germination Rate
- Genetically Modified
- Priming Information
- Thousand Corn Weight

After the operator defines Type (A), input in fields below will be possible. When operator has finished the input, either confirm or cancel.

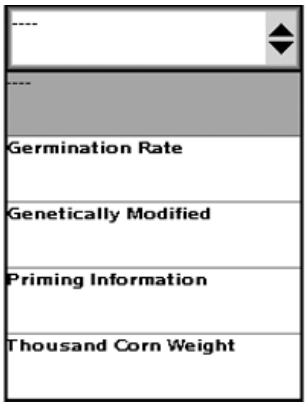
If Type (A) is setup to “Genetically Modified” the popup provides a check box (B) to mark whether the product is modified or not.

Delete Data Set

1. Select Type (A).
2. Choose “- - - -“.
3. Press Accept button.



PC12873 —UN—22SEP10



PC12872 —UN—22SEP10

CZ76372,0000178 -19-22SEP10-3/3

Using Documentation with a Dry Box/SpreadStar

MENU button >> GREENSTAR 3 PRO button >> DOCUMENTATION softkey

This screen allows operator to setup and change product application when GS3 system is connected to a dry box.

Client, Farm, Field, and Task information must be setup to run documentation for the dry box.

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8678 —UN—05AUG05



DOCUMENTATION softkey

Continued on next page

CZ76372,0000292 -19-30MAR11-1/3

Product Application tabs are automatically generated when GS3 system is hooked up to dry box controllers.

The first Product Application tab (A) is used to set up Bin - 1.

The second Product Application tab (B) is used to set up Bin - 2.

If the machine is equipped with only one bin the second tab will not show up.

Button (C) allows the operator to document additional product.

Button(D) selects between a single product and tank mix.

Button (E) allows the operator to input information on the product that is being applied.

Location (F) displays rate that is currently written in the prescriptions.

Button (G) displays the rate that is currently being commanded by the controller.

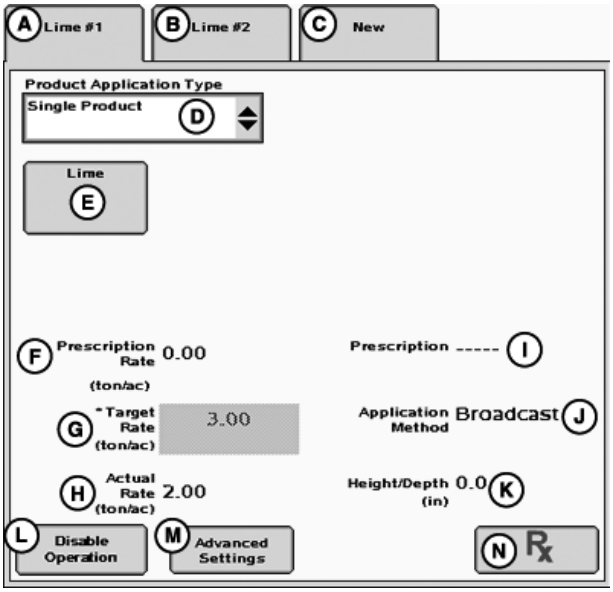
Location (H) displays the rate that is physically being applied to the field.

Location (I) displays the name of prescription if one is selected.

Location (J) displays the application method selected using the advanced settings, button (M).

Location (K) displays the Height/Depth and is selected using the Advanced Settings button (M).

Button (L) is disabled while connected to dry box controller.



PC13225 —UN—30MAR11

A—Product #1
B—Product #2
C—New Product (#3)
D—Product Application Type
E—Product Type
F—Prescription Rate
G—Target Rate
H—Actual Rate
I— Prescription
J— Application Method
K—Height/Depth
L—Disable Operation Button
M—Advance Settings
N—Prescription Button

Button (M) is used to added details.

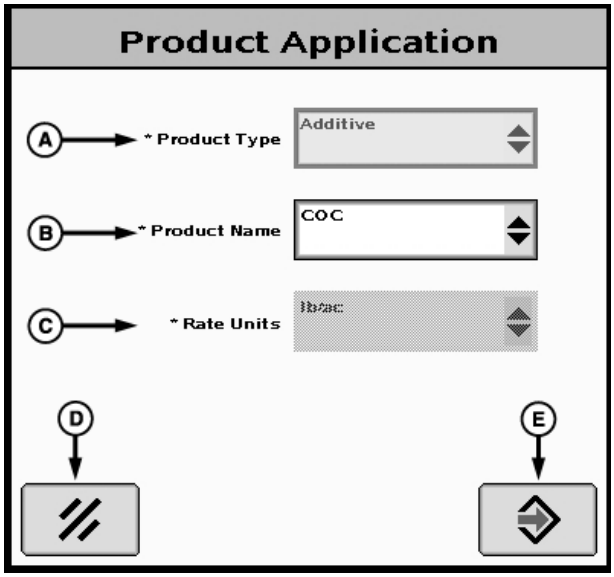
Button (N) is used to select prescription or convert shapefile to a prescription.

Continued on next page

CZ76372,0000292 -19-30MAR11-2/3

Pressing the Product Setup button, shown on previous page, will bring up the Product Application screen. This screen allows the operator to change Product Type or Product Name. Rate Units are set on lb./ac. and cannot be changed when using a dry box.. Pressing the Enter button (E) will save changes and return operator to the GreenStar 3 Pro - Documentation screen. Pressing the Cancel button (D) will return the operator to the GreenStar 3 Pro - Documentation screen without making any changes.

A—Product Type
B—Product Name
C—Rate Units
D—Cancel button
E—Enter button



PC9716 —UN—13NOV06

Product Application screen

CZ76372,0000292 -19-30MAR11-3/3

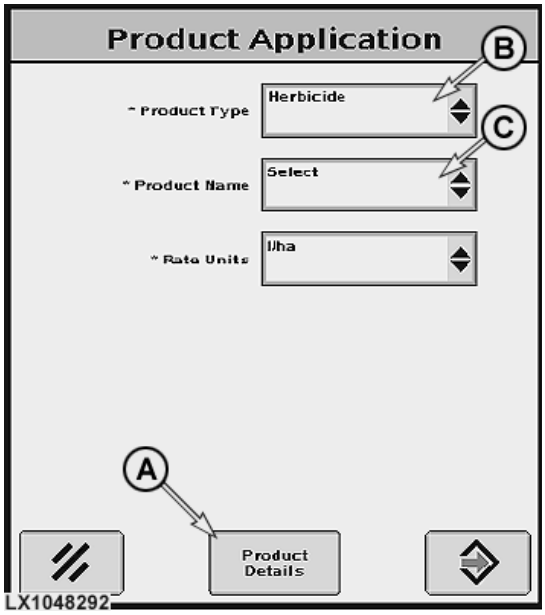
Product Application Product Details—Europe Only

The Product Details function allows documentation and communication of related information between desktop software and GS3 for products like chemicals, fertilizer and crop.

Product Details are only available for the Operations "Planting / Seeding" and "Product Application". Product Application is supported by sprayer and spreader.

NOTE: The GreenStar Seeder/ Sprayer/ Spreader Pro (Universal) activation enables the Product Details function. Product Details isn't available in all countries.

1. If Product Details button (A) is grayed out, define Product Type (B) and Product Name (C) first.
2. Press Product Details button (A).
3. Product details screen will appear.



LX1048292 —UN—24AUG09

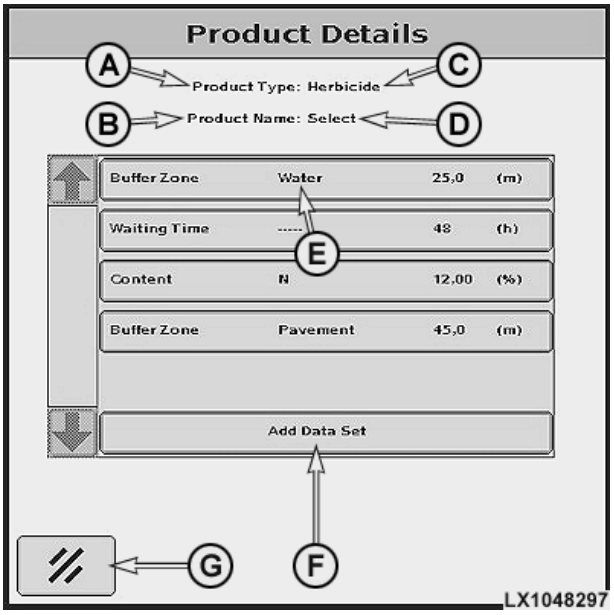
Continued on next page

CZ76372,0000179 -19-22SEP10-1/3

NOTE: Max. 25 entries could be added.

To add a detail, press (F). This will open the Product Details Entry screen.

A—Type
B—Name or Variety
C—Value designator 1
D—Value designator 2
E—Button to change or delete a data set
F—Button for new data set
G—Cancel, Back to prior page



LX1048297 —UN—24AUG09

CZ76372,0000179 -19-22SEP10-2/3

Information Types available for Product Application:

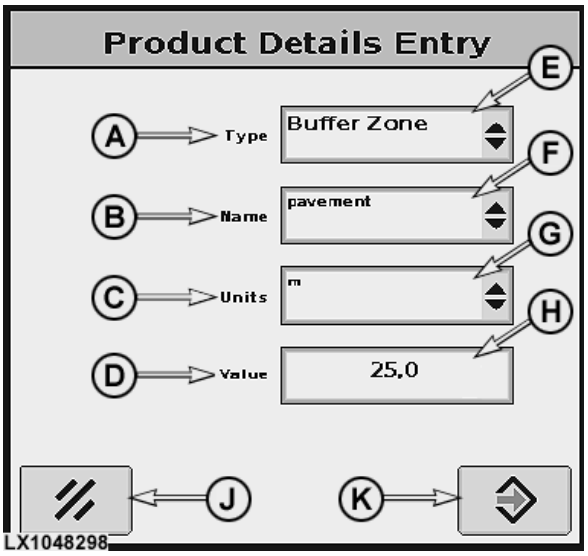
- Active Ingredient
- Indication
- Buffer Zone
- Content
- Waiting Time

After the operator defines field (E), an input in field (F), (G) and (H) is possible. When operator has finished the input, either confirms with (K) or cancel with (J).

Delete Data Set

1. Select field (E).
2. Choose "- - - -".
3. Press button (K).

A—Type
B—Name
C—Units
D—Value
E—Dropdown list (can't be changed)
F—Dropdown list (can be changed)
G—Units dropdown list (can't be changed)
H—Value field
J—Cancel, back to Product Details Screen
K—Accept changes, back to Product Details Screen



LX1048298 —UN—24AUG09

CZ76372,0000179 -19-22SEP10-3/3

Tank Mixes

Press: Menu button >> GreenStar 3 Pro button >> DOCUMENTATION softkey

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

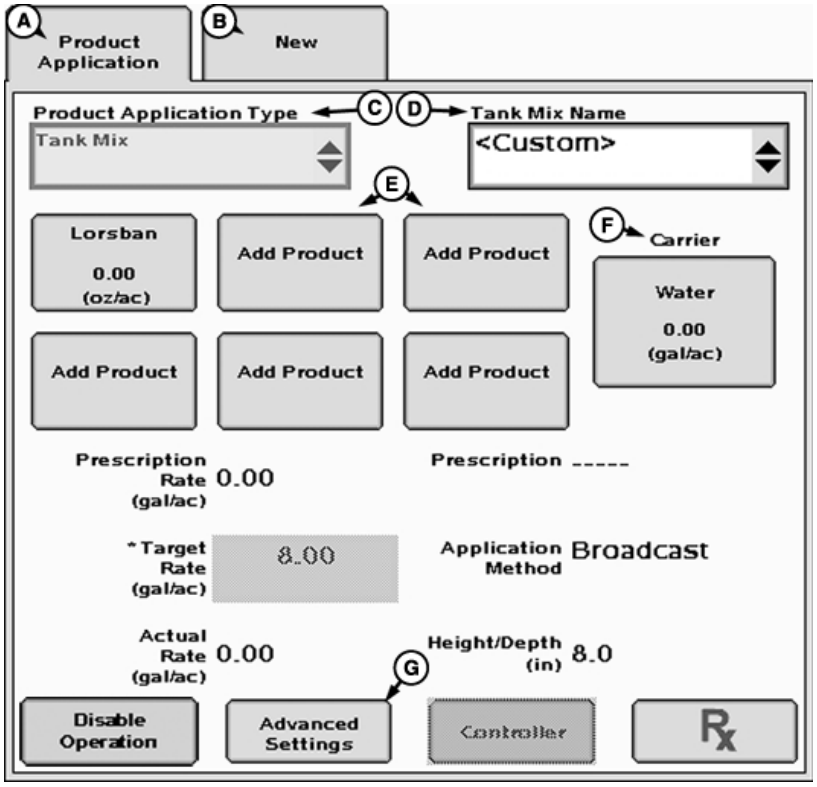
PC8678 —UN—05AUG05



DOCUMENTATION softkey

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CZ76372,00002BA -19-30MAR11-1/4



PC13222 —UN—30MAR11

GreenStar 3 Pro - Documentation

A—Product Name tab
B—New
C—Product Application Type
D—Tank Mix Name
E—Add Product
F—Carrier
G—Advanced Settings

The operator can define and document tank mixes during product application operations. They can be created and stored using desktop software or while in the cab.

If a tank mix is created with desktop software and imported to documentation via the USB drive, it can be selected in the Tank Mix Name (D) drop-down box under "Custom." Tank mixes created with desktop software can be modified with the GS3 display but not permanently.

NOTE: Preferred Partner software may not support this function. For further details, refer to your Desktop Software User's Guide.

A tank mix can be created on the GS3 display by:

- Selecting a desired Product Application Type (C).
- Defining the ingredients by pressing Add Product buttons (E). Up to 6 defined ingredients per tank mix are supported.
- Specify the carrier by pressing the Carrier button (F).

Advanced Settings Button (G) allows operator to input the Application Method and the Height/Depth.

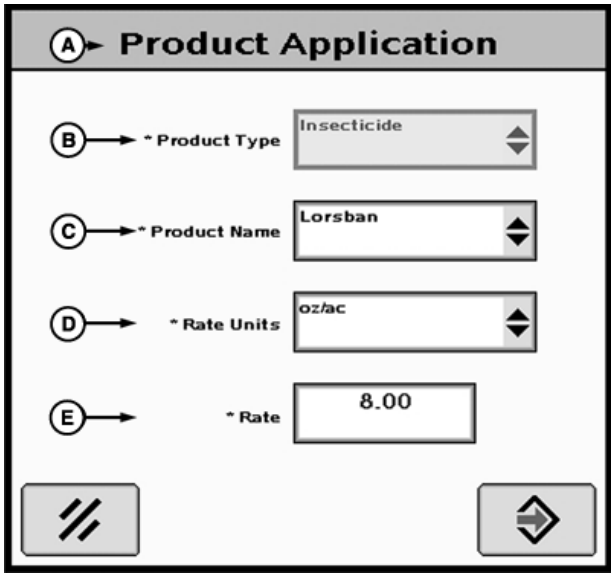
- If the tank mix being used was created in the GS3 display, PRODUCT APPLICATION will appear on the product tab (A).

Continued on next page

CZ76372,00002BA -19-30MAR11-2/4

Define the ingredients by pressing Add Product button on GreenStar 3 Pro - Documentation screen.

A—Product Application
B—Product Type
C—Product Name
D—Rate Units
E—Rate

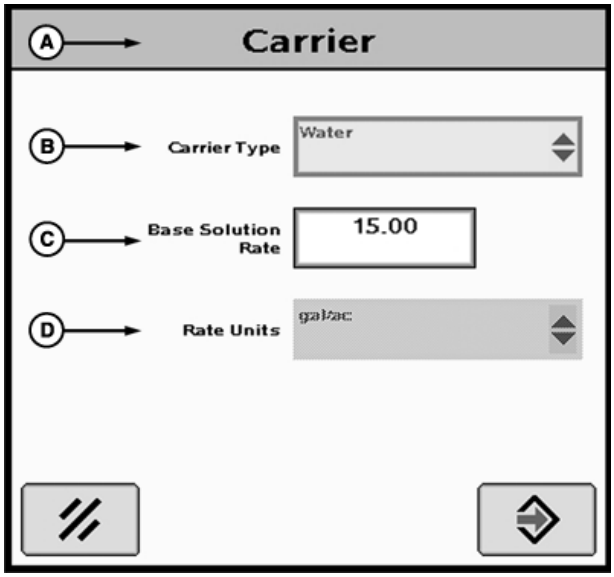


Product Application

CZ76372,00002BA -19-30MAR11-3/4

Specify the carrier by pressing the Carrier button on the GreenStar 3 Pro - Documentation screen.

A—Carrier
B—Carrier Type
C—Base Solution Rate
D—Rate Units



Carrier

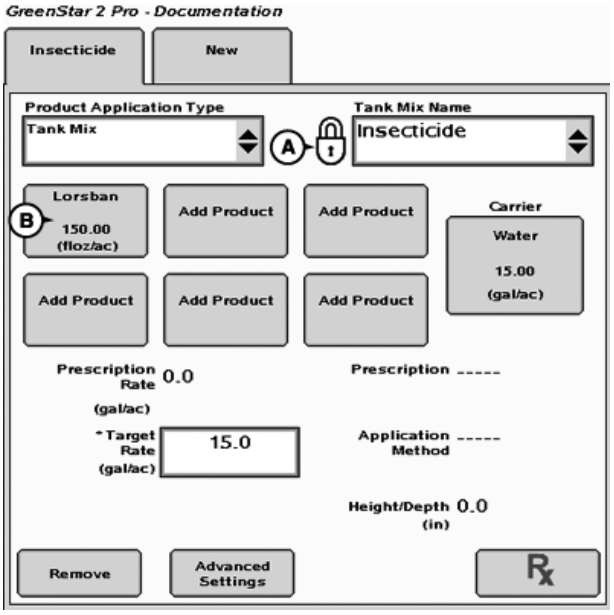
CZ76372,00002BA -19-30MAR11-4/4

Viewing Locked Tank Mixes

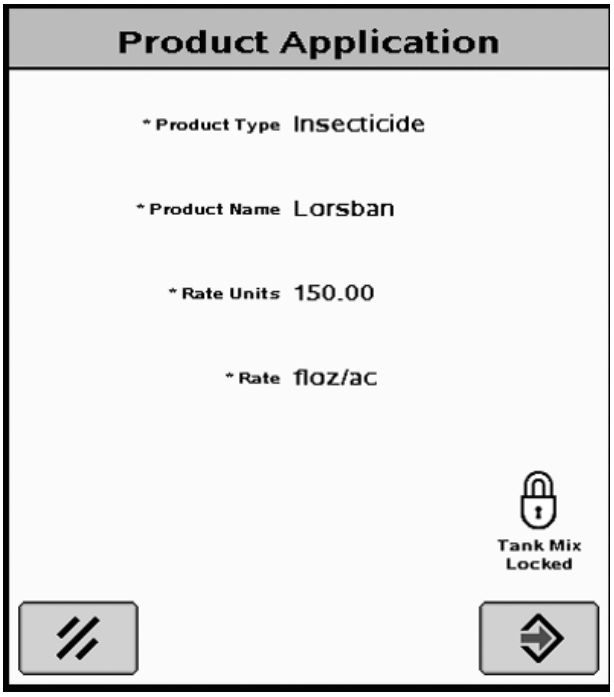
If you created a locked tank mix (A) in Apex. It is possible to view the contents of the locked tank mix. Press soft key (B) to view.

A—Lock (Tank Mix)

B—Locked Tank Mix softkey



PC10857QU —UN—31MAR10



PC10857QV —UN—14SEP09

CZ76372,000008B -19-09JUL10-1/1

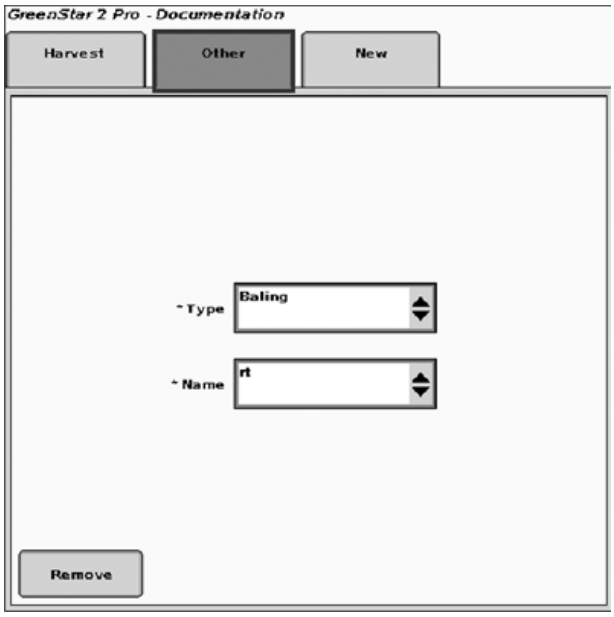
Harvest Documentation

NOTE: Totals listed under TOTALS button are only calculated when documentation is turned on.

When using Harvest Doc on self propelled harvesting equipment (Combine or Self-Propelled Forage Harvester), the operator should only choose one documentation tab (HARVEST), otherwise there will be no recording of data. In case there is an OTHER tab on the GS3 Pro Documentation page, this needs to be removed by selecting the OTHER tab and selecting REMOVE button.

See DOCUMENTATION softkey in this section to turn documentation on.

To turn documentation off, for guidance only, go to RESOURCES/CONDITIONS softkey > RESOURCES tab > TASK. Change TASK to DOCUMENTATION OFF. This allows all guidance screens and features to be functional while recording no documentation data.



GreenStar 3 Pro - Documentation

CZ76372,0000154 -19-23SEP10-1/1

Harvest Documentation Setup

MENU button > GREENSTAR 3 PRO button > DOCUMENTATION button > HARVEST tab

This screen allows operator to setup and change following items:

Grain	Cotton
Crop Type*	Crop Type*
Seed Brand	Seed Brand
Variety*	Variety*
Load Type	Load Type
Load Number	Load Number
	Load Alarm On/Off
Load Cart	Load Cart
Load Destination	Module ID
Residue management	Gin Turnout %

HARVEST tab

* required

NOTE: Client, Farms, Fields, Task, have to be setup under RESOURCE/CONDITIONS button before the Resource/Condition icon is shown and harvest operation can be accessed.

Tank and Basket Loads will only increase if the current load has been selected for more than 60 seconds. This will prevent a new load from being created when, for example, a truck is being topped off.

Save to a USB drive before starting Harvest, otherwise it can be setup in cab as a new names.

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8678 —UN—05AUG05



DOCUMENTATION button

NOTE: Combines loose unswitched power shortly after the key is turned off (90 seconds). Any time the GS3 display looses unswitched power it will go through a longer startup sequence. In addition, yield or moisture maps will need to be reselected after power up.

CZ76372,00002BB -19-30MAR11-1/5

Changing Harvest Settings

MENU button > GREENSTAR 3 PRO button > DOCUMENTATION button > HARVEST tab

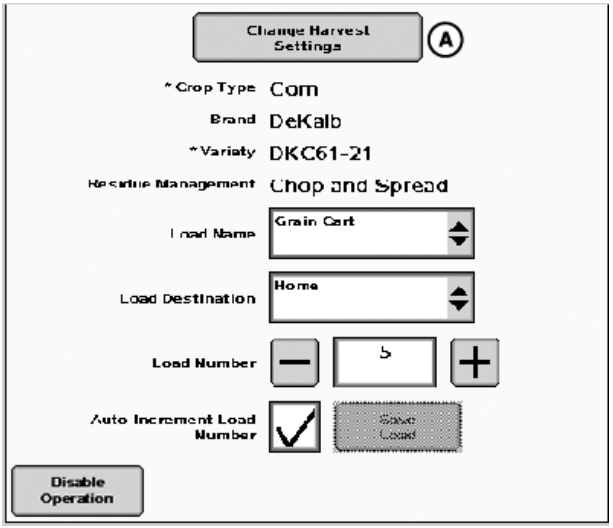
NOTE: Operations can be set up using desktop software and saved to a USB drive.

NOTE: Ensure that the first Operations tab is set to Harvest.

Three other operations are available for selection, but not needed.

Select CHANGE HARVEST SETTINGS button (A)

A—CHANGE HARVEST SETTINGS button



PC13226 —UN—30MAR11

Continued on next page

CZ76372,00002BB -19-30MAR11-2/5

The Harvest Settings screen allows operator to define:

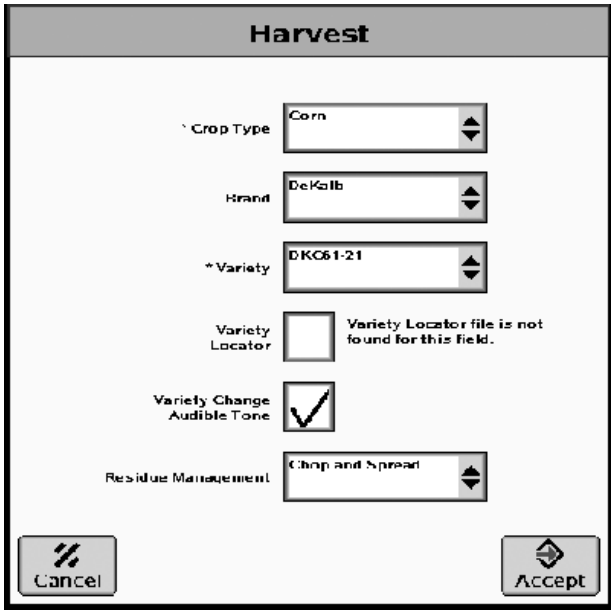
- Crop Type
- Brand
- Variety
- Variety Locator
- Residue Management (Excluding Cotton)

Variety Locator

Check the Variety Locator box in Harvest Settings to have the GS3 automatically change to the variety that was recorded while planting. This will record the variety that is coming into the center of the header (verify correct lateral and inline offsets on the Header page). The correct variety is recorded for each 3 meters (10 feet) square grid for each field selected in desktop software.

The variety locator files must be saved to the flash drive prior to combining.

A Variety Locator Message may appear telling the operator if the file for the current field is found, or if a file is available but not used.

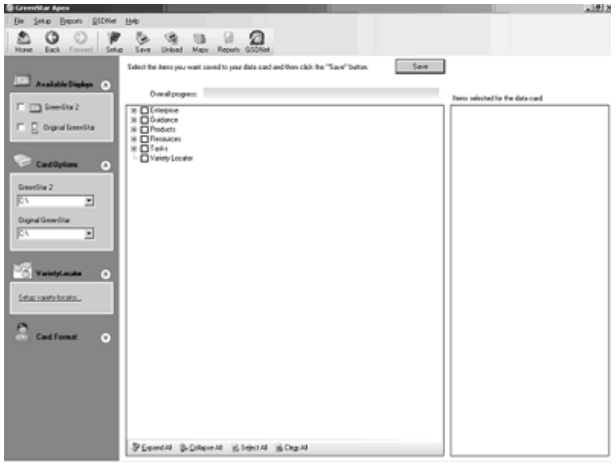


PC10857VK —UN—01APR10

Change Harvest Settings

CZ76372,00002BB -19-30MAR11-3/5

IMPORTANT: For Variety Locator to work on GS3 displays, varieties must be recorded when planting, loaded to desktop software, and saved to a flash drive. All fields that will use Variety Locator on a GS3 display at harvest must have the variety seeding information saved to a flash drive using desktop software. See the desktop software operator's manual for more information on how to properly save files to a flash drive.



PC9299 —UN—29JUL06

Desktop Software

Continued on next page

CZ76372,00002BB -19-30MAR11-4/5

Defining Residue Management

Select desired residue management:

- Chop
- Spread
- Chop and Spread
- Windrow
- Undefined (non-specified)
- NEW

Once selections have been made, press the Accept button.

Loads

NOTE: Contractor and Contract # can only be set up with desktop software and saved to a USB drive.

The Harvest tab screen allows an operator to view and change:

- Load Name (Can be anything operator wants it to be. Examples are Tank, Truck, Field, Basket, or Module)
- Load Number (Increment or Decrement to next load)
- Load Destination
- Gin Turnout % (Cotton Only)

Select letter button next to LOAD NAME to input desired name.

Select LOAD DESTINATION button.



PC10857VL —UN—01APR10

Select desired destination of load.

NOTE: Load name and destination can be saved from Apex or other compatible desktop software.

Apex is not available in all EAME countries.

Defining Gin Turnout % Enter the % Lint that is estimated for each field. The default is 33%.

CZ76372,00002BB -19-30MAR11-5/5

Harvest Monitor Setup

Select: MENU >> ORIGINAL GREENSTAR MONITOR button

Harvest Monitor is only available through the ORIGINAL GREENSTAR MONITOR application on the GS3 display. Once in the Original GreenStar Monitor application, operator interface will function the same as the Original GreenStar Display.

NOTE: The Original GreenStar Monitor is only viewable as a full screen.

NOTE: For all 9x70 combines, Harvest Monitor is located within the Command Center. See Combine Operator's Manual for more information.

IMPORTANT: If dual monitors are being used with an Original GreenStar Display on the system along with a GS3 display, Harvest Monitor will automatically function on the Original GreenStar Display and the Original GreenStar Monitor application will not be available and will not appear on menu.

Starting

NOTE: Errors may appear when first powering up the system. Cancel these errors before proceeding.

Screen: SETUP—HARV MON—PAGE 1

PC8663 —UN—05AUG05



PC12866 —UN—16SEP10



ORIGINAL GREENSTAR MONITOR button

Select: SETUP >> HARVEST MONITOR

Operator will need to setup information in HARVEST MONITOR on SETUP—HARV MON—PAGE 1 screen:

1. Header Width
2. Header Type
3. Yield Calibration
4. Moisture Calibration
5. Record Stop Height

NOTE: Farm, Field, and Crop need to be setup in HarvestDoc on GS3 >> DOC (I) button.

Continued on next page

CZ76372,000017E -19-24SEP10-1/5

Defining Header

Screen: SETUP—HEADER

Select: SETUP >> HARVEST MONITOR >> HEADER TYPE

IMPORTANT: Make certain header type is correct when changing from one header to another. The wrong header selection will result in an inaccurate information.

NOTE: To change from feet to meters see SETUP GreenStar DISPLAY.

Depending on which type of header is selected, there are additional items to be setup.

HEADER TYPE button will toggle between corn head, row crop, platform and belt pickup.

Select desired header type.

Corn Head/Row Crop Head

IMPORTANT: Make certain row spacing is correct when header types are changed. The wrong row spacing will result in inaccurate area calculation.

Header Width

Screen: SETUP—HEADER

Select: SETUP >> HARVEST MONITOR >> HEADER TYPE >> HEADER WIDTH

Enter header (in rows) width using numeric keypad.

Row Spacing

Screen: SETUP—HEADER

Select: SETUP >> HARVEST MONITOR >> HEADER TYPE >> ROW SPACING

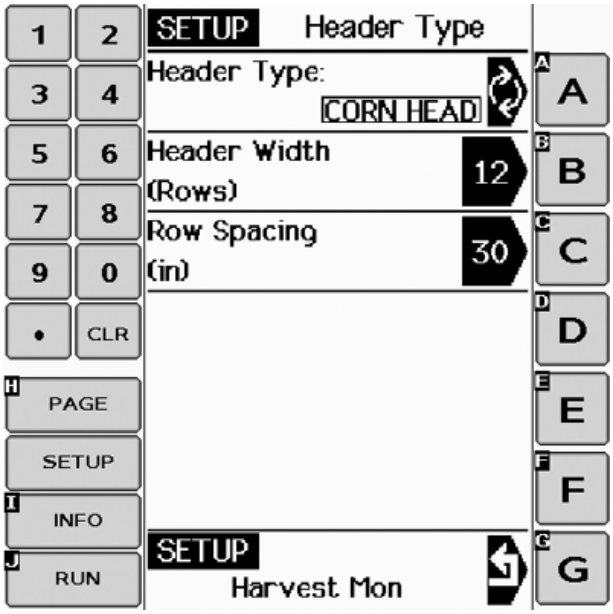
Enter row spacing mm (inches) using numeric keypad.

Row Change

Screen: SETUP—HEADER

Select: SETUP >> HARVEST MONITOR >> HEADER TYPE >> ROW CHANGE

Set increments (in rows) for cut width to change on RUN - PAGE 1 screen. Use numeric keypad to enter number.



PC12875 —UN—24SEP10

Define Header

Platform/Belt Pickup

Screen: SETUP—HEADER

Select: SETUP >> HARVEST MONITOR >> HEADER TYPE >> HEADER WIDTH

NOTE: If row crop (e.g. soybeans) are being harvested with a platform, and row spacing does not allow use of full header width, adjust header width to crop width being cut. For example: 7.6 meter (25 ft) platform may be 7 meters (24 ft) depending on row spacing.

Platform = Actual field cutting width in meters (feet)

Belt Pickup = Actual width of grain cut to produce windrow in meters (feet).

Set increments (in m (ft)) for cut width to change on RUN—PAGE 1 screen. Use numeric keypad to enter number.

Change increments (in meters or feet) for cut width to change on RUN—PAGE 1 screen. Use numeric keypad to input correct header width in meters or feet.

Continued on next page

CZ76372,000017E -19-24SEP10-2/5

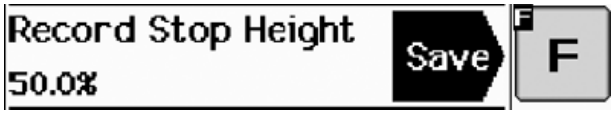
Selecting Recording

There are different methods of starting recording and these methods will change based model of combine and moisture sensor.

The most common method is the Record Stop Height.

The operator raises the header to the desired height for recording to shut off. Press the button next to Save, and a percentage height will be saved. If the header is lowered below that percentage, recording will turn on. If it is raised above that percentage, recording will turn off.

PC12876 —UN—24SEP10



Record Stop Height

CZ76372,000017E -19-24SEP10-3/5

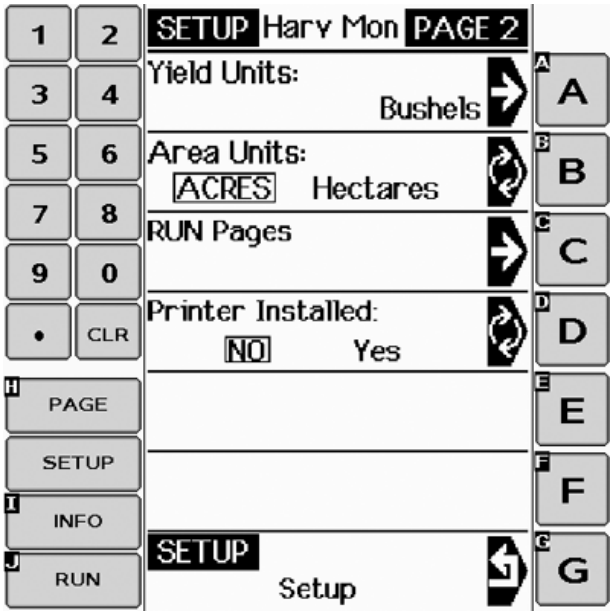
Setting Yield/Area Units

This screen is a continuation of SETUP - HARV MON - PAGE 1 screen.

This screen allows operator to choose Yield Units and Area Units that will be displayed on RUN pages. It also allows operator to configure RUN pages and turn on and off printer functions.

Area Units

To select units of area select AREA UNITS button: on SETUP - HARV MON - PAGE 2 screen. AREA UNITS button will toggle between ACRES and HECTARES. Selection will appear boxed in capital letters.



PC12877 —UN—24SEP10

Harvest Monitor Page 2

Continued on next page

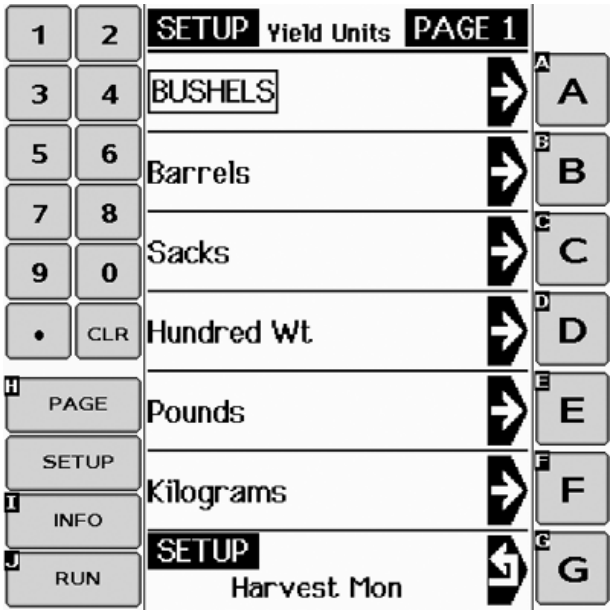
CZ76372,000017E -19-24SEP10-4/5

Yield Units

NOTE: See Standard Weights Chart section for standard weights of corps.

To select units of measure for yield readings, select YIELD UNITS button and SETUP - YIELD UNITS - PAGE 2 screen will appear.

Select desired unit.



Yield Units

CZ76372,000017E -19-24SEP10-5/5

Harvest Machine Setup

Defining Machine

Select: Main Menu > GreenStar 3 > EQUIPMENT softkey > MACHINE tab> Machine list box

NOTE: Select COMBINE, COTTON PICKER, or COTTON STRIPPER if not detected automatically.

Define make and model in list boxes below machine. (Not required)

Refer to Machine And Implement Setup section for information on machine offsets.

Defining Header Width and Header Offset

Select: HEADER tab > HEADER list box

NOTE: Select Header Type if not detected automatically.

Enter header make and model. (Not required)

Header Width is set up in Harvest Monitor. See Section on Harvest Monitor Setup or the 70 Series combine Operator Manual for procedures.

Verify that the proper width has been sent from Harvest Monitor and shows in this tab.

This screen allows operator to define:

- Header Name
- Header Width comes from Harvest Monitor (see Original GreenStar Monitor or the 70 Series combine Operator Manual)
- Header Offset
- Track Spacing (See Guidance section)

NOTE: Header Offset is used for operators using an offset head (for example, draper).

PC8663 —UN—05AUG05



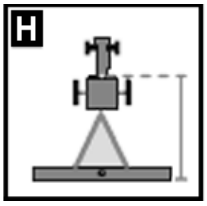
MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8677 —UN—05AUG05



EQUIPMENT softkey

Refer to Machine And Implement Setup section for more information.

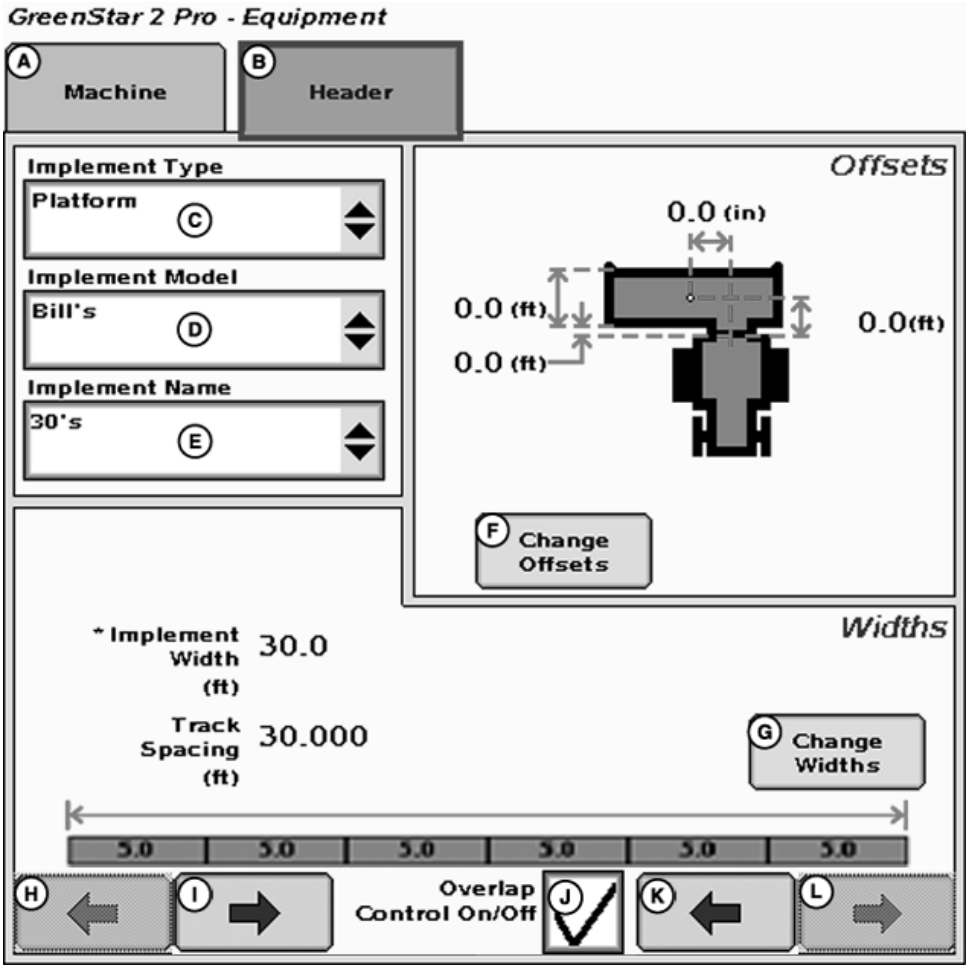
Defining Header Width for Self-Propelled Forage Harvesters

Header width is set up in OBD RCP 180 and others. See the user manual that came with the self-propelled forage harvester to verify the correct setup in the OBD. Do this for all other implements and headers which cannot be changed in the display itself (field is grayed out).

Continued on next page

CZ76372,0000183 -19-24SEP10-1/3

Cut Width Adjustment



PC12913 —UN—24SEP10

GREENSTAR 3 PRO - EQUIPMENT screen >> HEADER

A—Machine
B—Header
C—Implement Type Drop-Down Menu
D—Implement Model Drop-Down Menu
E—Implement Name Drop-Down Menu
F—Change Offsets Button
G—Change Widths Button
H—Increase Cut Width—Left Hand Side
I— Decrease Cut Width—Left Hand Side
J— Overlap Control Check Box
K—Decrease Cut Width—Right Hand Side
L—Increase Cut Width—Right Hand Side

Cut width can be adjusted in two places:

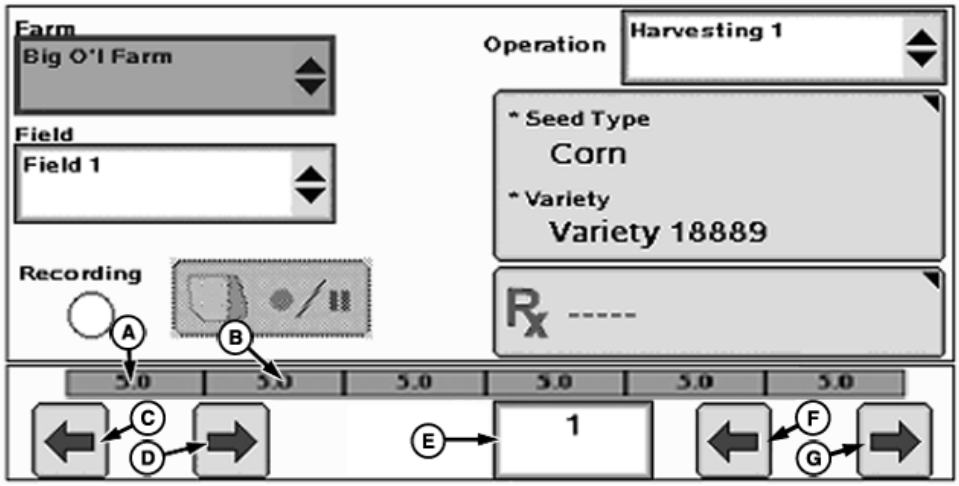
- GREENSTAR 3 PRO - EQUIPMENT screen >> HEADER tab
- One of two home pages options

The width of the header is shown on the HEADER tab screen as Implement width.

Press arrows (H) (I) (K) and (L) to increase or decrease the amount of cut width on the left or right side.

The Overlap Control Check Box (J) allows the operator enable or disengage the overlap control feature.

Continued on next page



PC12914 —UN—24SEP10

Half Screen Home Page Option

Cut Width Adjustment is available in either a full or half screen on the home page.

To combine less than a full cut, press the arrows (D) or (F) to reduce the gray bar (B) to the correct width and correct placement along the width of the header (A). Arrows (C) and (G) increase the crop width. This adjustment allows for the correct number of acres to be calculated based on the actual width of crop coming into the header. It also creates accurate on-screen and desktop software maps. When the header is raised, it will automatically go back to a full cut.

NOTE: Changing cut width is no longer available on the Run Page of Harvest Monitor using the Original GreenStar monitor.

CZ76372,0000183 -19-24SEP10-3/3

Quick Setup for Combines

Harvest Monitor (HMON) stand-alone is not available on the GS3—you will have to run documentation.

When you install your GS3 on a combine you have to set up Client, Farm, Field and Task (CFFT) in Resources & Conditions and then Crop and Variety in Documentation. The corresponding moisture curve and the header type in HMON will be selected automatically. If these are not selected in GS3 Pro, HMON won't select a moisture curve and will show "Corn Head" as default header type (on every start-up).

Please use the following guidelines to set up your HMON/GS3 for harvesting. HMON on GS3 will be displayed in Original GreenStar Monitor.

NOTE: Harvest Monitor is in the CommandCenter on 70 Series Combines.

Select: MENU >> GS3 PRO >> RESOURCES & CONDITIONS

Setup Client, Farm, Field and Task (CFFT).

PC8663 —UN—05AUG05



Menu button

PC12685 —UN—14JUL10

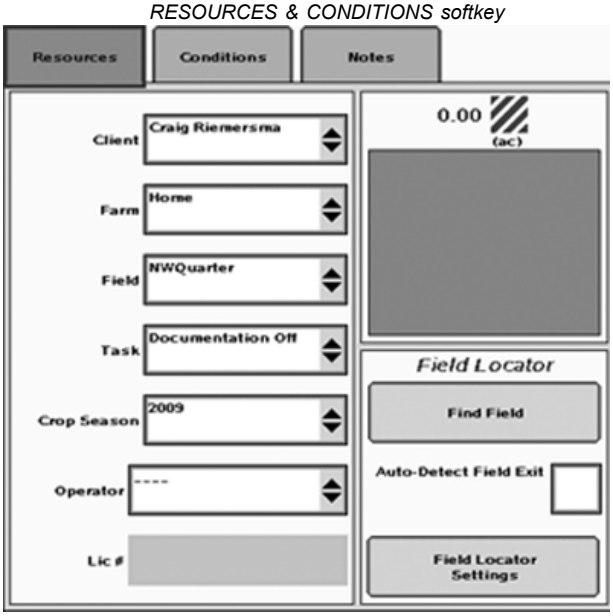


GREENSTAR 3 PRO button

PC8676 —UN—05AUG05



RESOURCES & CONDITIONS softkey



PC13227 —UN—30MAR11

Resources/Conditions Page

Continued on next page

CZ76372,00002BC -19-30MAR11-1/12

Select: MENU >> GS3 PRO >> DOCUMENTATION >> HARVEST

A “Harvest” tab will be displayed in Documentation

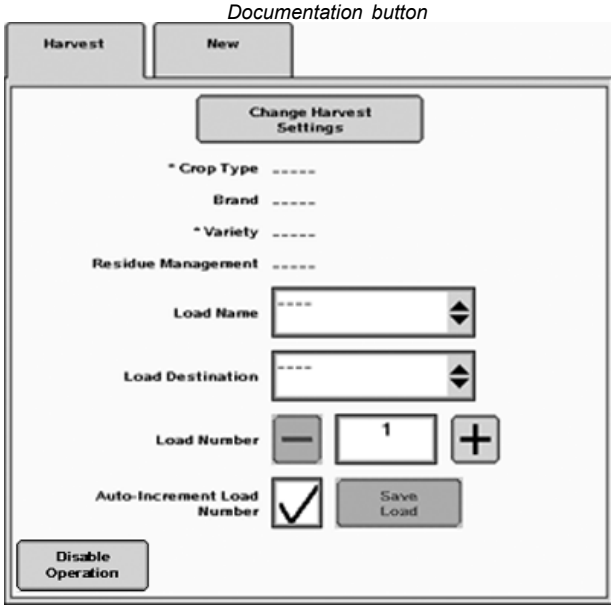
IMPORTANT: Crop type and variety are mandatory settings for documentation and moisture curve selection.

Press the “Change Harvest Settings” button to enter crop type and variety (among other things).

PC8678 —UN—05AUG05

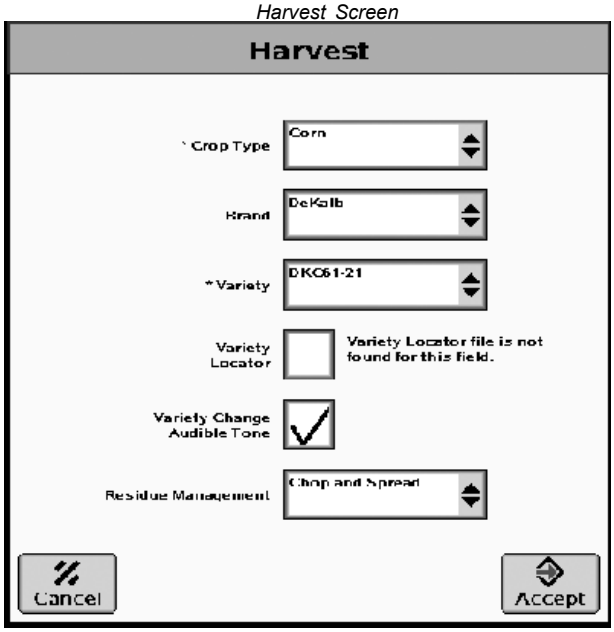


Documentation button



PC13228 —UN—30MAR11

Harvest Screen



PC10857VK —UN—01APR10

Harvest Settings

Continued on next page

CZ76372,00002BC -19-30MAR11-2/12

Select: MENU >> ORIGINAL GREENSTAR MONITOR >> HARVEST MONITOR

With crop type and variety selected in HDOC, Moisture Curve and Header Type settings are made in HMON automatically. See Setup – HMON—Moisture—Moisture Curve.

PC8663 —UN—05AUG05

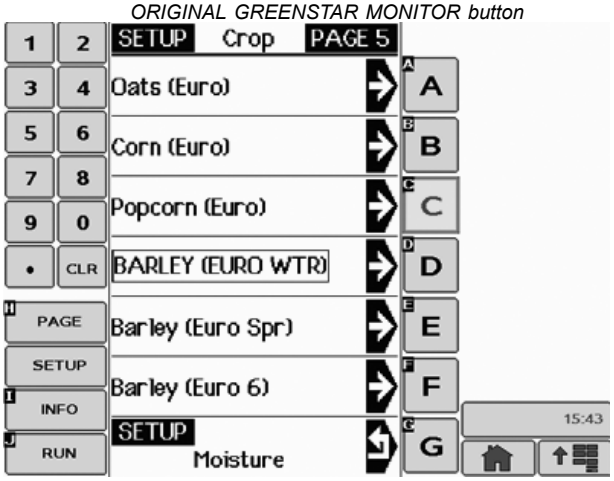


Menu button

PC12866 —UN—16SEP10



ORIGINAL GREENSTAR MONITOR button

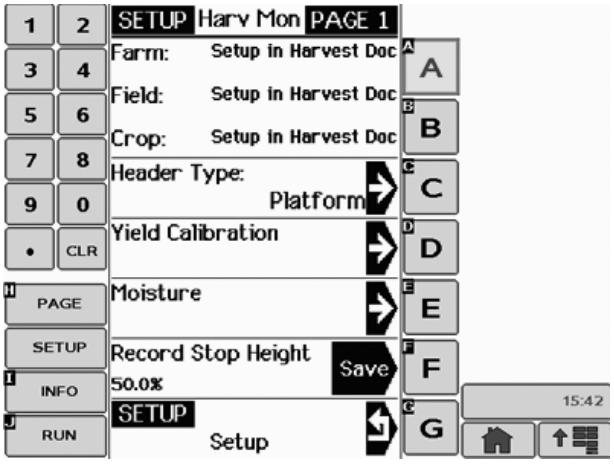


PC10348 —UN—29SEP07

CZ76372,00002BC -19-30MAR11-3/12

For Corresponding header type, see Setup—HMON (e.g. “platform”, when barley is selected).

If a change is needed with the header type or header with, select the line for Header Type.



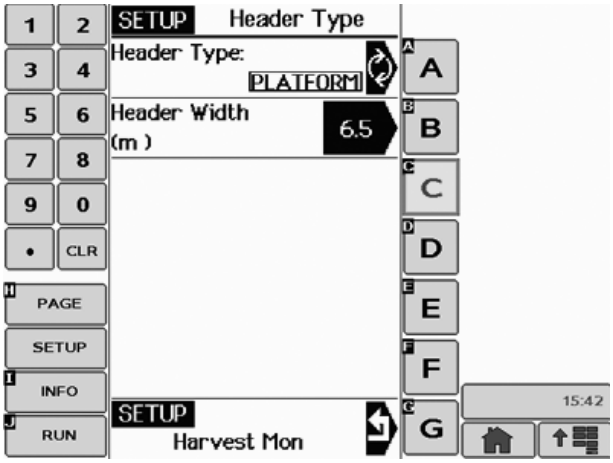
PC10349 —UN—29SEP07

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CZ76372,00002BC -19-30MAR11-4/12

You can then change the Header Type or Header Width (if needed).

Changes made here will override automatic selection that was based on crop and variety.



Continued on next page

CZ76372,00002BC -19-30MAR11-5/12

Select: MENU >> GS3 PRO >> EQUIPMENT >> MACHINE

When a moisture sensor is connected to the CAN bus the GS3 will automatically detect “Combine” as machine type.

PC8663 —UN—05AUG05



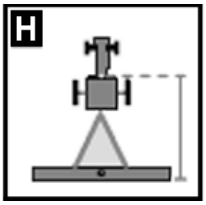
Menu button

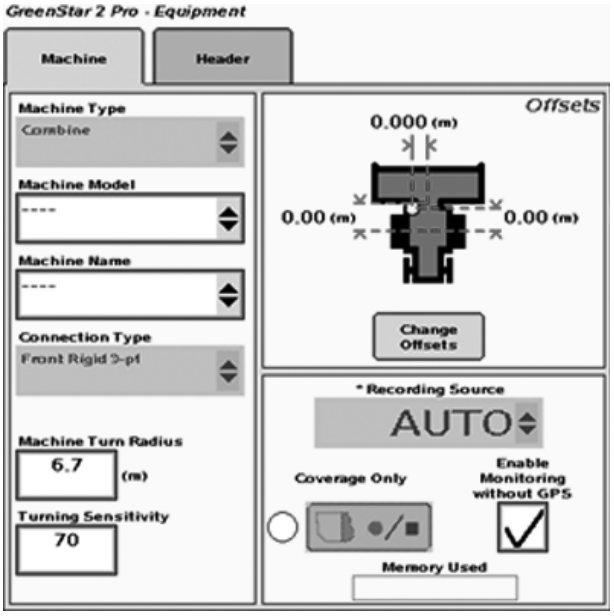
PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8677 —UN—05AUG05





PC12826 —UN—27AUG10

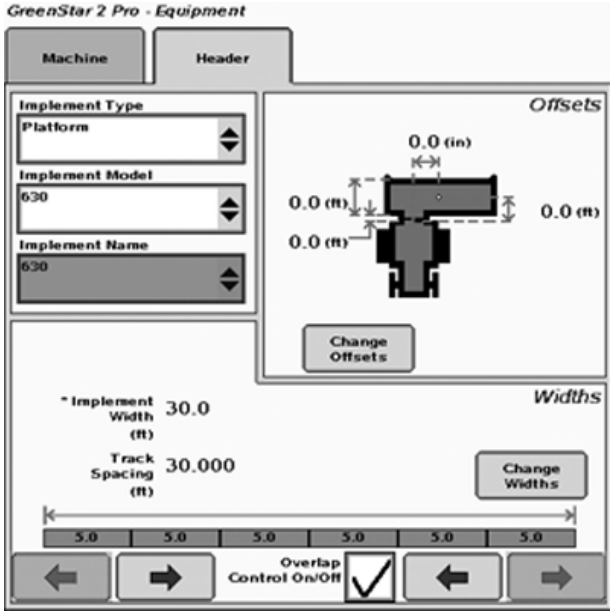
Equipment Page

Continued on next page

CZ76372,00002BC -19-30MAR11-6/12

Select: HEADER

The GS3 will read the header with from HMON and show it as the “implement width”.



PC12829 —UN—27AUG10

GreenStar 3 Pro—Equipment

CZ76372,00002BC -19-30MAR11-7/12

IMPORTANT: The working width will be stored on the moisture board. Header type and moisture curve will be selected automatically when a corresponding crop type and variety are selected in HDOC.

The crop type will be saved when the GS3 is shut down correctly. You will have to re-select it, when you delete the data from your USB drive or put in a new one.

You have the ability to check the correct settings for Documentation by choosing “Recording” in the drop-down menu of the Diagnostics Readings page

Select: MENU >> GS3 PRO >> DIAGNOSTICS >> view RECORDING



PC12830 —UN—27AUG10

GreenStar 3 Pro—Diagnostic Readings

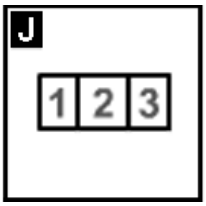
Continued on next page

CZ76372,00002BC -19-30MAR11-8/12

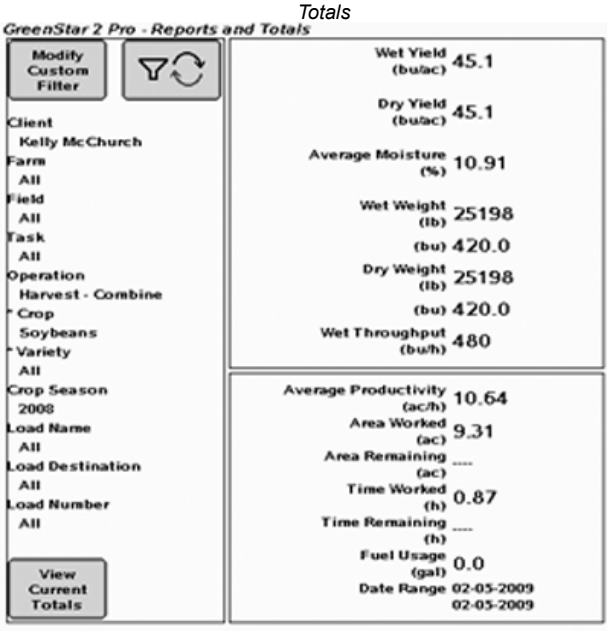
The Totals page will only be available when your harvest operation is properly defined.

Select: MENU >> GS3 PRO >> TOTALS

PC8679 —UN—05AUG05



Totals



PC12831 —UN—27AUG10

GreenStar 3 Pro—Reports and Totals

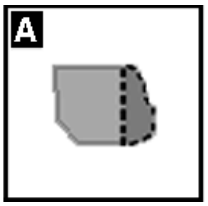
Continued on next page

CZ76372,00002BC -19-30MAR11-9/12

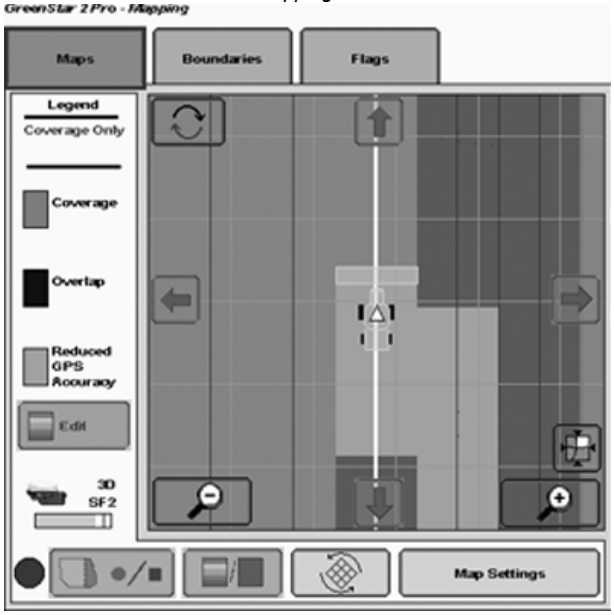
On-screen mapping functions are handled through the Mapping Icon. These include coverage, yield and moisture maps.

Select: MENU >> GS3 PRO >> MAPPING >> MAP SETTINGS >> FOREGROUND MAP drop down list

PC8672 —UN—05AUG05



Mapping button



PC12740 —UN—25AUG10

Continued on next page

CZ76372,00002BC -19-30MAR11-10/12

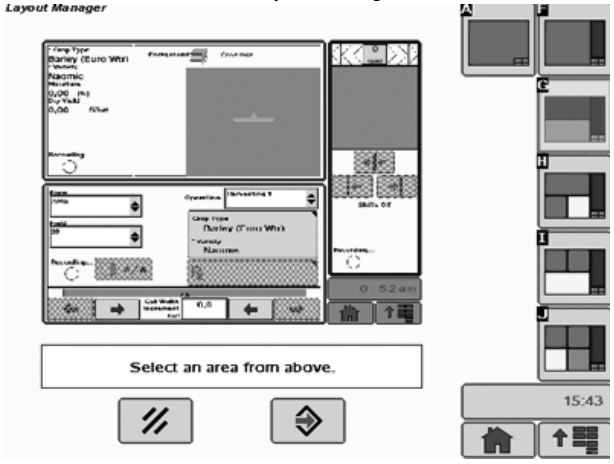
Home Page Layout functions are handled through the layout manager. Here you have the ability to set up your Run page the way you prefer.

Select: MENU >> LAYOUT MANAGER

PC12869 —UN—16SEP10



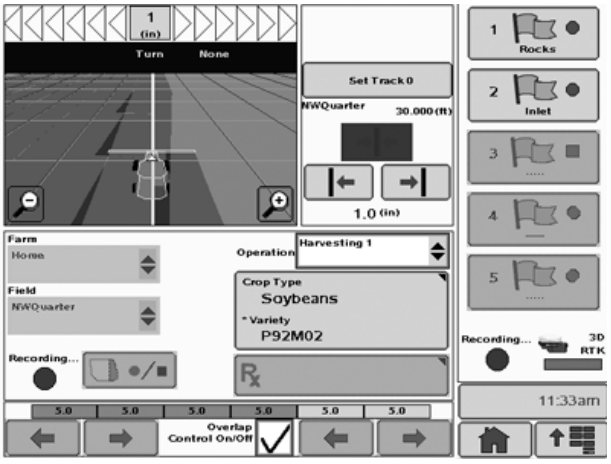
Layout Manager



PC10355 —UN—29SEP07

CZ76372,00002BC -19-30MAR11-11/12

We would suggest using the following layout on combines.



PC10356B —UN—06APR09

CZ76372,00002BC -19-30MAR11-12/12

Harvest Monitor Yield Calibration

Calibration

General Calibration Information

Screen: SETUP—YIELD CALIBRATION

Select: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION

Mass flow sensor must be calibrated in order to achieve accurate grain weight measurements. Standard Calibration procedure must be performed in every crop that is harvested. In addition, optional Low Flow Compensation procedure may be performed to obtain an improved level of accuracy in situations where there are large variations in grain flow rate.

The following paragraphs describe different screens that are used in calibration procedure.

Calibration In Progress or System Not Calibrated Cell

This section displays if mass flow sensor has been calibrated to desired crop.

If system has not be calibrated a message displaying “System NOT Calibrated” will be displayed.

If standard calibration has been performed a bar graph indicating flow rate sensor has been accurately calibrated.

If a standard and low flow calibration has been completed, bar graph will expand to show an increased area of accuracy.

Calibration Mode Cell

This screen indicates whether Standard Calibration procedures or optional Low Flow procedure is to be performed.

Select CALIBRATION MODE button to switch between STANDARD CALIBRATION and optional LOW FLOW CALIBRATION.

Yield Calibration Cell

This screen allows calibration procedure to be started or stopped.

Harvested Weight Cell

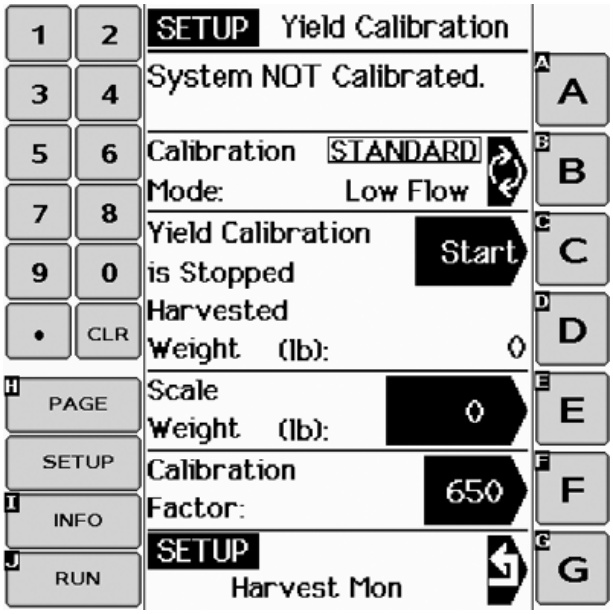
This screen indicates approximate weight of grain that has been harvested during calibration process.

Scale Weight Cell

This screen allows scale weight to be entered after a calibration run is complete (during calibration run, indicates approximate weight of grain that has been harvested).

Calibration Factor Cell

Value shown here allows mass flow sensor to read accurately. This value will be updated automatically by



Standard Calibration

Calibration procedure. This value can also be adjusted manually.

IMPORTANT: Before calibrating be sure that combine grain tank and unloading auger tube are empty. Be sure that wagon or truck hauling grain away from combine is empty.

NOTE: Message with the following information may appear on screen: “Low Cal Flow Comp NOT required.” If this message appears, flow rate during calibration was very low. Therefore, it is neither necessary nor possible to perform optional Low Flow Compensation procedure. Standard Calibration procedure is sufficient.

Yield monitor system can be accurate only if operator follows correct calibration procedures.

The following procedures should be performed at maximum ground speed which operator expects to run in this crop and condition, and in an area that is reasonably level and of uniform yield.

1. Select CALIBRATION MODE button to select desired calibration.
2. Select START/STOP button. Display will change to YIELD CALIBRATION IS RUNNING.
3. Begin harvesting. Weight displayed in HARVESTED WEIGHT cell should increase while harvesting.
4. Harvest known amount of grain (i.e. grain tank full, truck load, wagon load, etc.).
5. When known load is completed, stop machine and allow all harvested grain to enter grain tank.
6. Select STOP button to stop calibration. Display will change to YIELD CALIBRATION IS STOPPED.

Continued on next page

IMPORTANT: Be sure to empty grain tank completely and be certain all grain is on one vehicle (wagon or truck).

7. Have known amount of grain weighed. While waiting for scale ticket to return, you may continue by selecting RUN button.
8. When scale ticket returns to combine, go to Yield Calibration Page.
9. Select SCALE WEIGHT button to change weight value.
10. Using numeric keypad, input NET WEIGHT OF GRAIN from scale ticket.

IMPORTANT: Standard calibration procedure will not change data already saved. After changes are made, all harvest information collected from that point on will reflect changes.

NOTE: If scale ticket weight is more than 50% higher or lower than displayed weight, system will NOT allow entry of scale weight.

11. Select SCALE WEIGHT button to enter new value. CALIBRATION FACTOR will change automatically when grain weight is entered.

Continued on next page

CZ76372,0000180 -19-24SEP10-2/4

Low Flow Compensation Procedure—Optional

NOTE: DO NOT perform a manual adjustment of calibration factor if you intend on using Low Flow Compensation procedure.

The following procedure should be performed only after Standard Calibration procedure has been performed for this crop and condition. While procedure is optional, it will produce accurate results only if it is followed carefully.

The procedure should be performed at approximately one-half to two-thirds of ground speed at which Standard Calibration procedure for this crop and condition was run and in an area that is reasonably level and uniform in yield.

Screen: SETUP—YIELD CALIBRATION

Select: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION

IMPORTANT: Be sure combine grain tank and unloading auger are empty. Be sure wagon or truck hauling grain away from combine is empty.

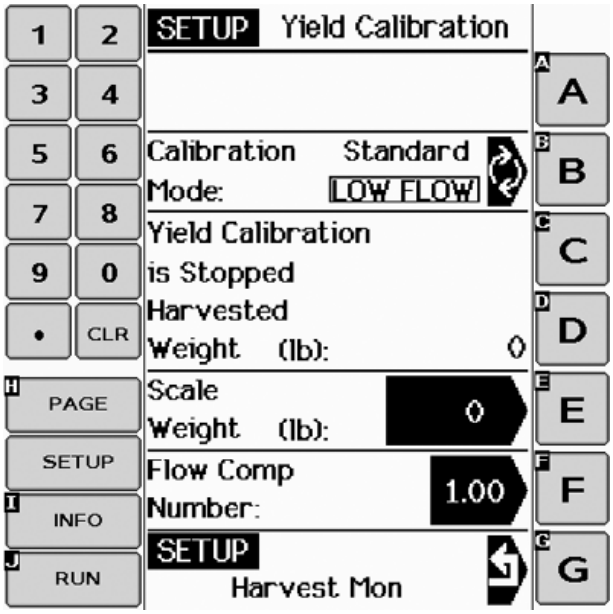
1. Select CALIBRATION MODE button and select LOW FLOW.
2. Select START/STOP button and display will change to YIELD CALIBRATION IS RUNNING.

NOTE: There is a delay after changing ground speed before moving indicator responds. Therefore, after making a ground speed adjustment, wait 10 to 20 seconds and observe effect of moving indicator before making another adjustment.

3. Begin harvesting and adjust ground speed until moving indicator stabilizes in target range.
4. HARVESTED WEIGHT cell should increase while harvesting.
5. Harvest known amount of grain (grain tank full, truck load, wagon load, etc.).
6. When known load is completed, stop machine and allow all harvested grain to enter grain tank.

NOTE: Message with the following information may appear: Comp Flow Too High. Repeat Comp Run. If this message appears, it will not be possible to enter scale weight. Repeat optional Low Flow Compensation procedure, paying special attention to keep moving indicator in target range (A).

7. Select START/STOP button again to stop calibration. Display will change to YIELD CALIBRATION IS STOPPED.



Low Flow Comp Cal

IMPORTANT: Be sure to empty grain tank completely and make sure all grain is on one vehicle (wagon or truck).

8. Have known amount of grain in truck or wagon weighed. While waiting for scale ticket to return, you may continue by selecting RUN button.
9. When scale ticket returns to combine, go to YIELD CALIBRATION screen
10. Select SCALE WEIGHT button to change weight value.
11. Using numeric keypad, input net weight of grain from scale ticket.

IMPORTANT: Calibration procedures will not change data already saved. After changes are made, all harvest information collected from that point on will reflect changes.

NOTE: If scale ticket weight is more than 50% higher or lower than displayed weight, system will NOT allow entry of scale weight.

12. Select SCALE WEIGHT button to enter new value. FLOW COMP NUMBER will change automatically when grain weight is entered.

Continued on next page

Manually Adjusting Calibration Factor

Screen: SETUP—YIELD CALIBRATION

Select: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION

NOTE: Do not perform a manual adjustment of Calibration Factor if you intend on using Low Flow Compensation procedure.

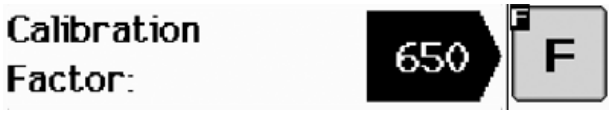
If scale weight is more than 50% higher or lower than displayed weight, system will not allow entry of scale weight.

A new calibration factor can also be entered manually. To calculate calibration factor, divide weight shown on display by new weight on scale ticket. Multiply result by displayed calibration factor (see example below). This is the new calibration factor.

To manually enter a calibration factor:

1. Select CALIBRATION FACTOR button to change calibration factor.

PC12881 —UN—24SEP10



Calibration Factor

2. Using numeric keypad, input calibration factor.
3. Select CALIBRATION FACTOR button to enter a new value.

Displayed Calibration Factor = 950

Weight of grain shown on display = 27,643 lb

Net weight of grain from scale ticket = 27,022

Displayed Calibration Factor (950) **X** Weight of grain shown on display (27,643 lb) **/** Net weight of grain from scale ticket (27,022 lb) **=** New Calibration Factor (971)

New Calibration Factor = 971

CZ76372,0000180 -19-24SEP10-4/4

Harvest Monitor Moisture Correction

Setup—Moisture Correction

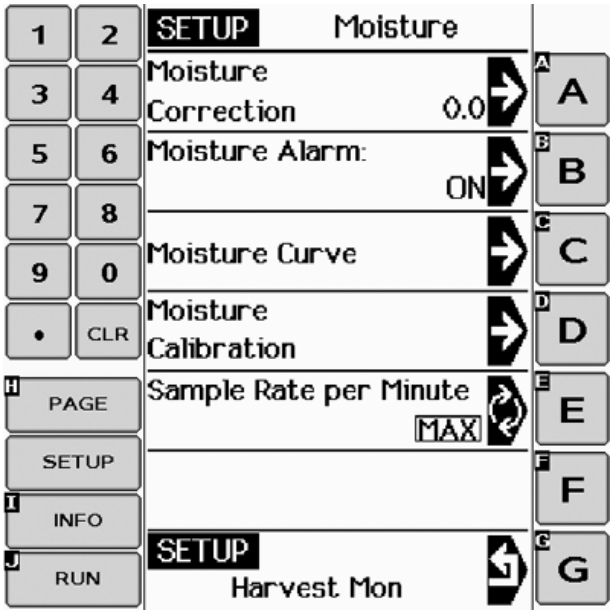
IMPORTANT: Changing moisture correction in the "Moisture Correction" cell will not change the data already saved. After changes are made, all harvest information collected from that point will reflect the changes.

SETUP - MOISTURE screens are used to setup moisture correction, moisture alarm (on/off) and moisture curves.

Screen: SETUP—MOISTURE

Select: SETUP >> HARVEST MONITOR >> MOISTURE

Moisture correction screen is used to set moisture correction to match reading from a customer or elevator certified moisture sensor as shown on RUN - PAGE 1 screen.



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Moisture Sensor

Continued on next page

CZ76372,000017F -19-24SEP10-1/4

Moisture Correction

NOTE: Harvesting, recording "ON", determine how many points the moisture correction needs to be added or removed from the instantaneous moisture.

Not harvesting, recording "OFF", will display average moisture of crop. Average moisture does not need to be corrected. If average moisture is corrected, the instantaneous moisture could be over corrected.

1. **Screen:** SETUP—MOISTURE CORRECTION

   Select: SETUP >> HARVEST MONITOR >> MOISTURE >> MOISTURE CORRECTION

NOTE: "Crop" cell displays the selected crop.

2. MOISTURE CORRECTION button and FIXED MOISTURE VALUE button allow the operator to correct the moisture reading on RUN—PAGE 1 screen by toggling to FIXED MOISTURE VALUE, moisture sensor will be disabled and forces moisture value to what was entered.
3. If using MOISTURE CORRECTION: Select MOISTURE CORRECTION button and using numeric keypad input a number value to be added to reading displayed on RUN—PAGE 1 screen.
4. Select MOISTURE CORRECTION button again to save this value.
5. If using fixed moisture value; Select FIXED MOISTURE VALUE button and using numeric keypad, input a number value (%) to be displayed on RUN - PAGE 1 screen.

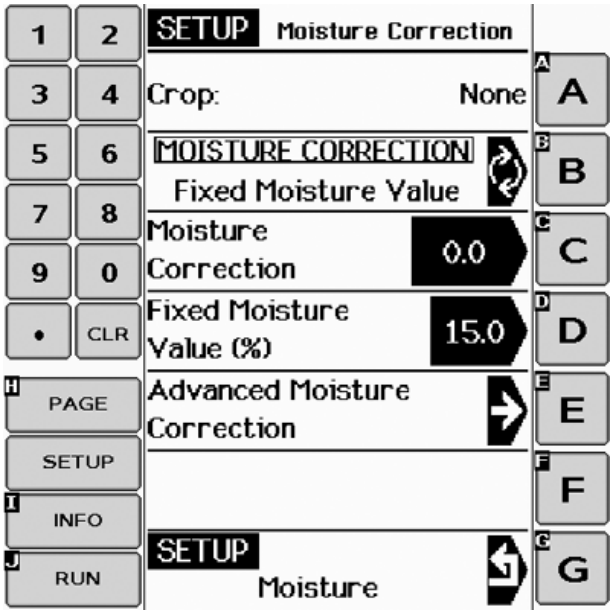
Advanced Moisture Correction

NOTE: This procedure is used to determine moisture correction when elevator readings do not agree with combine moisture readings.

Do not use this procedure if crop moisture levels are above 16%. For crops above 16% enter moisture correction manually.

1. Collect 1 L (1 qt) grain sample from the grain tank and place in a sealed container and have tested by elevator.

IMPORTANT: To finish this procedure the combine engine must be turned OFF.



PC12883 —UN—24SEP10

2. Select ADVANCE MOISTURE CORRECTION button on SETUP—MOISTURE CORRECTION screen.
3. Select ELEVATOR GRAIN MOISTURE button on SETUP—ADVANCED CORRECTION screen.
4. Using numeric keypad, enter value from elevator.
5. Select ELEVATOR GRAIN MOISTURE button to save value.
6. To start sampling select START button.

NOTE: Screen will prompt operator to POUR SAMPLE IN MOISTURE SENSOR.

Make sure moisture sample chamber is fully filled and is free of air pockets. Air pockets will cause inaccurate moisture readings.

7. Pour sample into moisture sensor.
8. Screen will display CALIBRATION IN PROGRESS.
9. MEASURED MOISTURE IS cell will display the moisture of the sample in the moisture sensor.
10. Select ACCEPT button to save this value or select DECLINE button to decline this value.

Continued on next page

Moisture Alarm

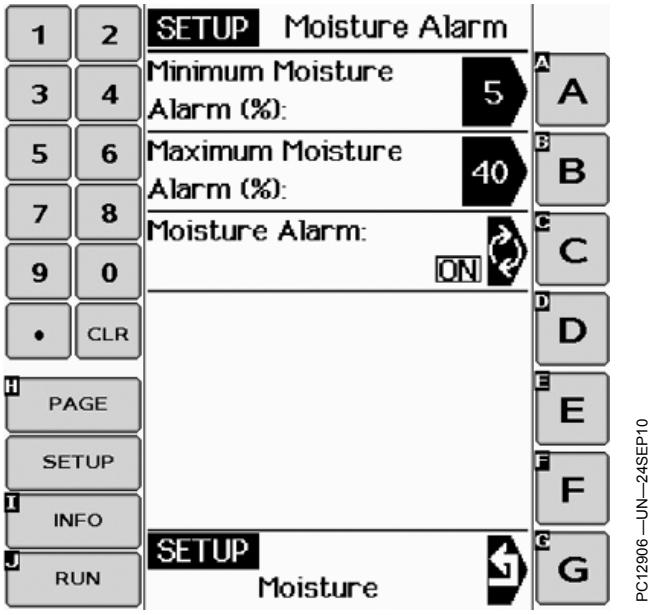
This screen is used to determine the set points (minimum and maximum) for activation of the moisture alarm.

Select MOISTURE ALARM button on SETUP—MOISTURE screen and SETUP—MOISTURE ALARM screen will appear.

Select MINIMUM MOISTURE button and using numeric keypad enter a new minimum setting.

Select MAXIMUM MOISTURE button and using numeric keypad enter a new maximum setting.

Select MOISTURE ALARM button to toggle ON/OFF.



Moisture Alarm

CZ76372,000017F -19-24SEP10-3/4

Moisture Curve

Three moisture curve choices are:

- Enter New Curve — This would be used when a new curve has been developed for a new crop.
- Update Curve — This would be used when a better curve has been developed for a current crop.
- Restore Curve Defaults — This would be used when to reinstate the original curve.

Refer to MOISTURE CURVE CALIBRATION CODES later in this section for the latest available codes.

This screen is used to enter new moisture curves that may be provided by the factory.

Use the following to enter a new curve as directed.

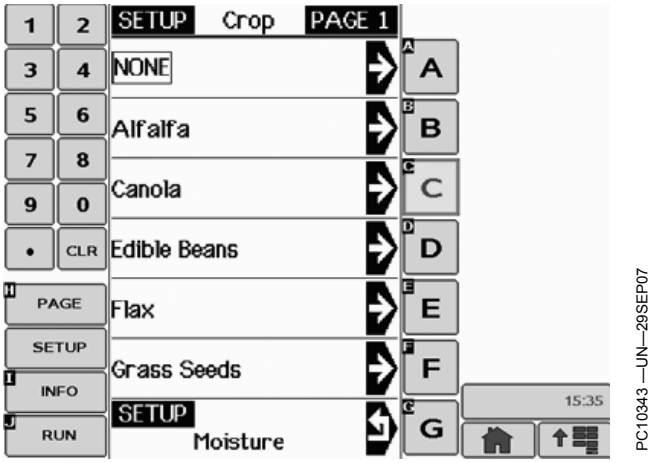
1. Select MOISTURE CURVE button on SETUP—H Mon—MOISTURE, MOISTURE CURVE

NOTE: If needed select page button until desired crop appears.

2. Select desired crop to be updated.

NOTE: To view current moisture curve, go to INFO Harvest Monitor section.

3. Select CROP button to toggle between ENTER NEW CURVE, UPDATE CURVE or RESTORE CURVE DEFAULTS.
4. If ENTER NEW CURVE is selected select letter button next to a blank cell and using numeric keypad enter the new moisture curve number.



Moisture Curves

5. Select SAVE THIS CURVE button.

NOTE: To update an existing curve, toggle to UPDATE CURVE on SETUP - MOISTURE CURVE screen.

6. Select letter button next to blank cell and using numeric keypad enter update.
7. Select SAVE THIS CURVE button .
8. To restore default curves, select CROP button to toggle to RESTORE CURVE DEFAULTS.
9. Select SAVE THIS CURVE button to restore default curves for the selected crop.

CZ76372,000017F -19-24SEP10-4/4

Harvest Monitor Cotton Setup

Press: MENU button >> ORIGINAL GREENSTAR MONITOR button

Harvest Monitor is only available through the ORIGINAL GREENSTAR MONITOR application on the GS3 display. Once in the Original GreenStar Monitor application, operator interface will function the same as the Original GreenStar Display.

NOTE: The original GreenStar Monitor is only viewable as a full screen.

IMPORTANT: If dual monitors are being used with an Original GreenStar Display on the system along with a GS3 display, Harvest Monitor will automatically function on the Original GreenStar Display and the Original GreenStar Monitor application will not be available and will not appear on menu.

PC8663 —UN—05AUG05



PC12866 —UN—16SEP10



ORIGINAL GREENSTAR MONITOR button

CZ76372,0000181 -19-24SEP10-1/5

Harvest Monitor Cotton Flow Chart

Setup					
Harvest Monitor					
Page 1				Page 2	
Set Number of Rows and Spacing	Yield Calibration	Run Page	Recording ON/OFF	Yield Units	Area Units
Total Width	Quick Cal		Material	Bales	Acres
Spacing	Standard Cal		Header	Pounds	Hectares
Active Rows	Manual Cal		Combination	Kilograms	
Machine Model	Row Correction Cal		Manual	Hundred wt.	
				Metric Tonnes	
				Tons	

Setting Yield Units

Screen: SETUP

Press: SETUP >> HARVEST MONITOR >> YIELD UNITS:

NOTE: See standard weight chart section for standard weights of crops.

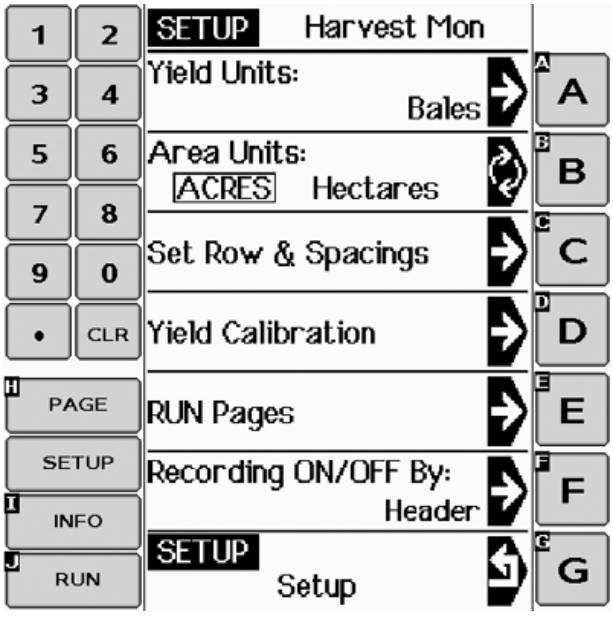
- Bales
- Pounds
- Kilograms
- Hundred Wt
- Metric Tonnes
- Tons

Setting Area Units

Screen: SETUP - HARVEST MON

Press: SETUP >> HARVEST MONITOR

Press AREA UNIT button to toggle between ACRES and HECTARES. Selection will appear boxed in and capitalized.



PC12907 —UN—24SEP10

Harvest Monitor Cotton

Continued on next page

CZ76372,0000181 -19-24SEP10-2/5

Setting Rows and Spacing

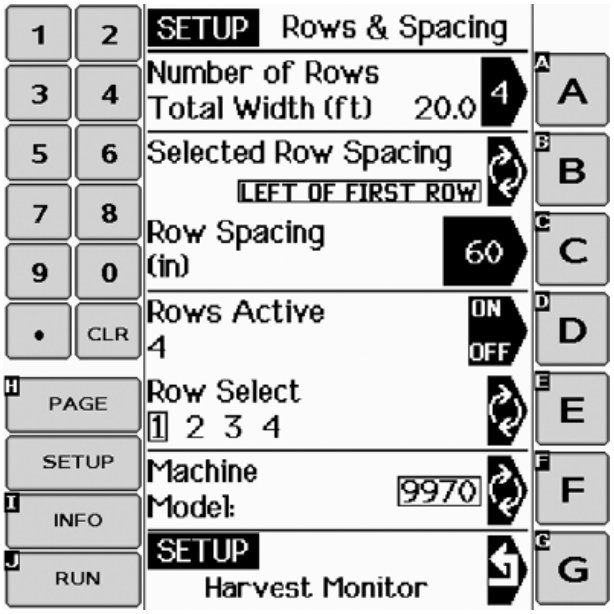
Screen: SETUP - ROWS & SPACING

Select: SETUP > HARVEST MONITOR > SET ROW & SPACINGS

IMPORTANT: Make certain rows and spacings are correct. Wrong row spacing will result in inaccurate area calculation.

1. Select NUMBER OF ROWS button.
2. Enter number of rows and select NUMBER OF ROWS button again to enter value.

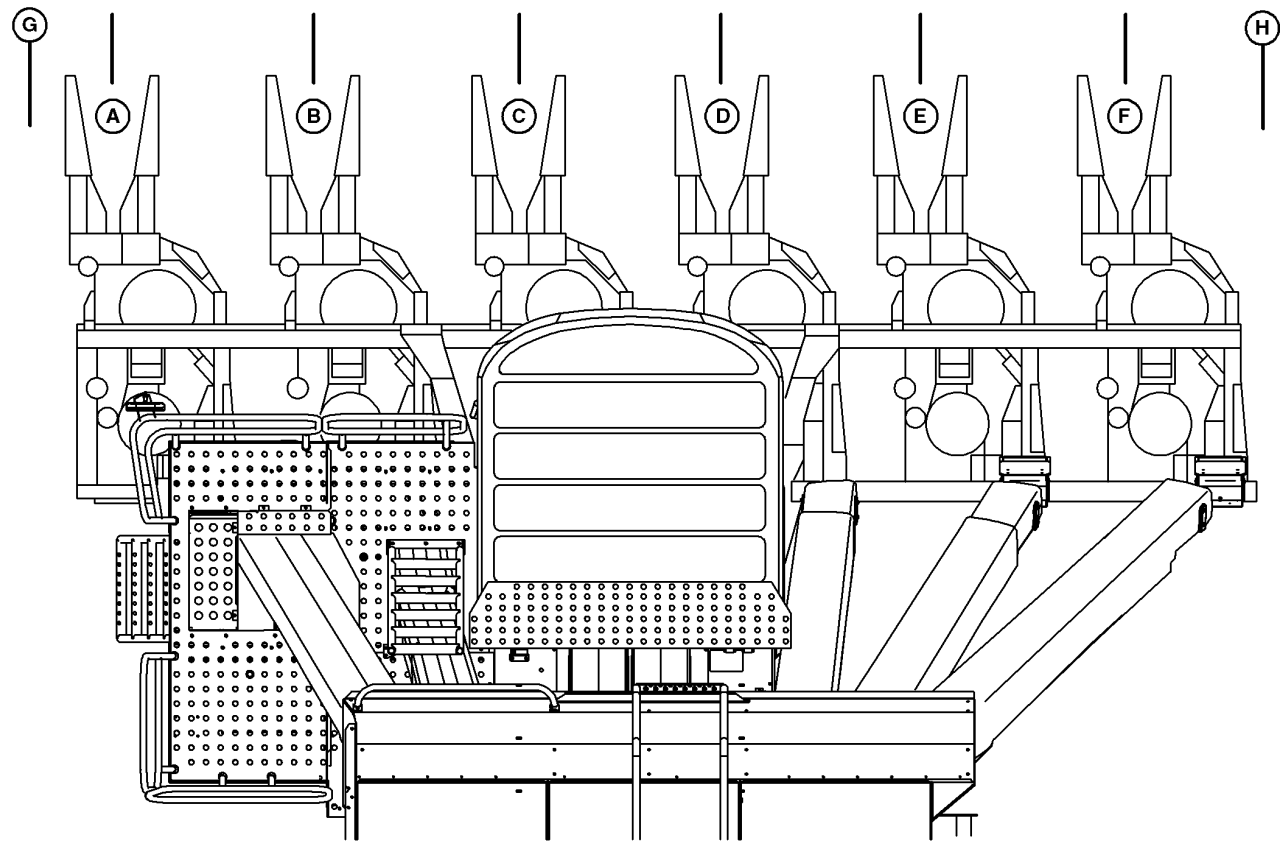
NOTE: An alarm will be displayed in section G to state limits for row spacings.



Rows & Spacing

Continued on next page

CZ76372,0000181 -19-24SEP10-3/5



A—Row #1
B—Row #2
C—Row #3
D—Row #4
E—Row #5
F—Row #6
G—Row Left of First Row
H—Row Right of Last Row

3. Enter row spacing for all rows starting with LEFT OF FIRST ROW. Select SELECTED ROW SPACING button to toggle from one row spacing to next. Select ROW SPACING button to enter distance between rows.

   Example: You have a 9996 cotton picker, which is setup to pick 6 rows of 30 (in) cotton. To setup up the right spacing in the Display for area to be calculated properly you will need to enter the following:

   - Enter 6 for the number of rows.
   - Next enter 30 (in) for each selected row spacing.
   - To enter row spacing you will need to toggle between selected rows
     - Left of first Row should = a row spacing of 15 (in)
     - Between first and second row should = a row spacing of 30 (in)
     - Between second and third row should = a row spacing of 30 (in)
     - Between third and fourth row should = a row spacing of 30 (in)
     - Between fourth and fifth row should = a row spacing of 30 (in)
     - Between fifth and sixth row should = a row spacing of 30 (in)
     - Right of last row should = a row spacing of 15 (in)
   - Total width should now show 15 (ft).

   NOTE: Picker setup for skip row cotton will vary from above example.

4. Verify TOTAL WIDTH: is shown correctly after entering all row spacings.

5. To make a row inactive select ROW SELECT button until number of desired row appears boxed in. Select ROWS ACTIVE button to toggle selected row between ON/OFF. When a row is inactive its number will appear on display with a slash through it.

Continued on next page

6. Select MACHINE MODEL button to toggle to proper machine model. There may be only one machine model available depending on software version.

Recording

Screen: SETUP—RECORDING ON/OFF

Press: SETUP >> HARVEST MONITOR >> RECORDING ON/OFF BY:

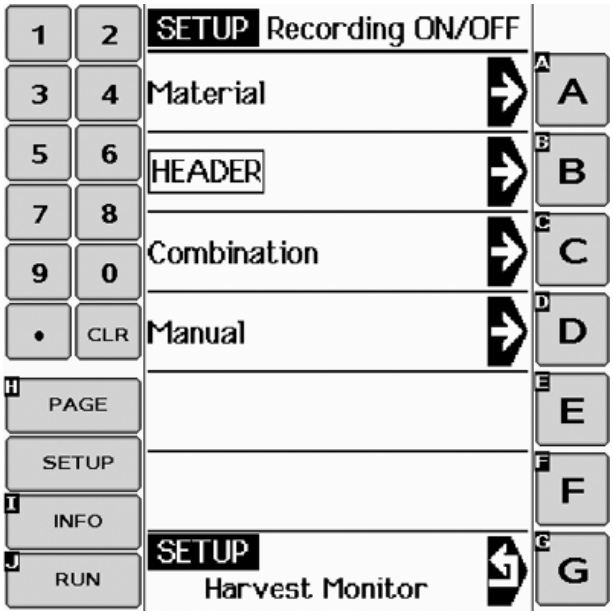
This screen allows operator to setup recording on/off using the following methods:

Material—Flow of Cotton

Header—Raise/Lower Picking Units

Combination—Raise/Lower Picking Units and Material Flow Detected

Manual—On/Off by operator from RUN page



Recording Source

CZ76372,0000181 -19-24SEP10-5/5

Harvest Monitor Cotton Calibration

Calibration

NOTE: Always read the text to the left of the START/STOP arrow. This explains the current status of calibration. Arrow changes back and forth between START and STOP. When yield calibration is stopped, START arrow is shown. When yield calibration is running, STOP arrow is shown.

STOP arrow—CALIBRATION IS RUNNING. Push button to STOP CALIBRATION.

START arrow—CALIBRATION IS STOPPED. Push button to START CALIBRATION.

Screen: SETUP—YIELD CAL

Press: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION

Mass flow sensors must be calibrated in order to achieve accurate cotton weights. Calibration should be performed when necessary as condition and maturity of crop change or at least once a season.

Quick Calibration: Easiest calibration procedure when there is no scale available for weighing harvest samples.

Standard Calibration: Used when actual weights can be obtained from a scale for harvest samples.

Manual Calibration: Only used if previous procedures do not work because calibration is off by more than 50%. Before performing manual calibration, check to make sure all components in yield monitoring system are installed and performing correctly, and that sensors are unobstructed.

Post Calibration: Done with desktop software. There is no post calibration procedure to be performed in field or on display. This is recommended method for best results. Desktop software allows post calibration using weight of crop from whole field or weight of crop from each module, depending on level of detail wanted.

Are you a customer that is using Harvest Monitor Cotton for the sole purpose of seeing your yield as you go across the field?

If you believe it is important for the Harvest Monitor Cotton system to be as accurate as possible at all times in the field (on display in cab), the following recommendation can help you achieve this expectation: Mass flow sensors need to be calibrated to achieve more accurate seed cotton weights shown on the display in the field. This is done by performing a QUICK CAL or STANDARD CAL after a Row Compensation Calibration is performed in uniform crop. STANDARD Cal, which uses actual scale weights, is the best form of calibration to use in order to attain more accurate cotton weights. Once calibrated, additional calibration may be used for any substantial changes in types of cotton, variety change, moisture, crop management, quality of defoliation, weeds, irrigated vs. non-irrigated, crop conditions, etc. Any of these condition changes in cotton could cause shift in accuracy of the system. Throughout the season it is recommended to check accuracy by weighing the cotton. Recalibration is suggested if you find that the system is not accurate.

Continued on next page

Row Compensation

Screen: SETUP—STANDARD CAL

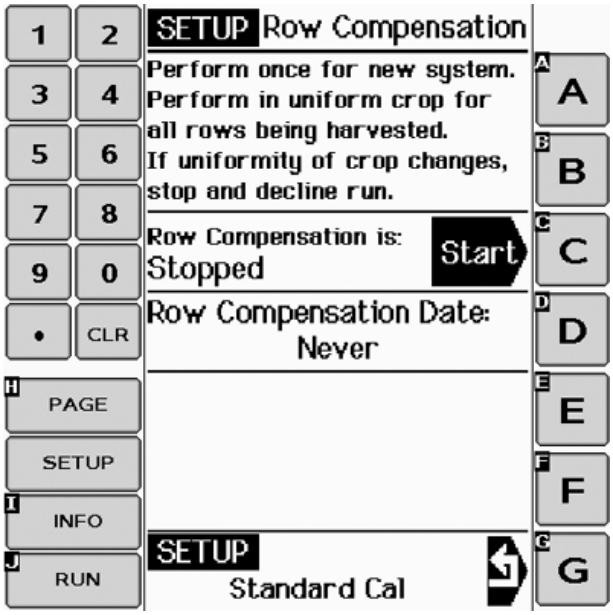
Press: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION >> STANDARD CALIBRATION >> ROW COMPENSATION

NOTE: Only perform once. This only needs to be performed after system has been installed or if sensor attachment has changed in any way.

1. Press START button to begin procedure.

NOTE: Sample must be of a uniform yield for all rows being harvested.

2. Harvest a yield sample—30.5 m (100 ft) or 1/4 basket.
3. Press STOP button.
4. Accept or decline run made.
5. A date will be displayed if successful.



Row Compensation

CZ76372,0000182 -19-24SEP10-2/5

Quick Calibration

Screen: SETUP—YIELD CAL

Press: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION

IMPORTANT: Before calibrating be sure that harvester basket is empty. Be sure boll buggy or cotton module is empty.

Procedure should be performed at maximum ground speed which operator expects to run in this crop and condition, and in an area that is reasonably level and of uniform yield.

If standard calibration is running estimated yield will be adding up because they are tied together.

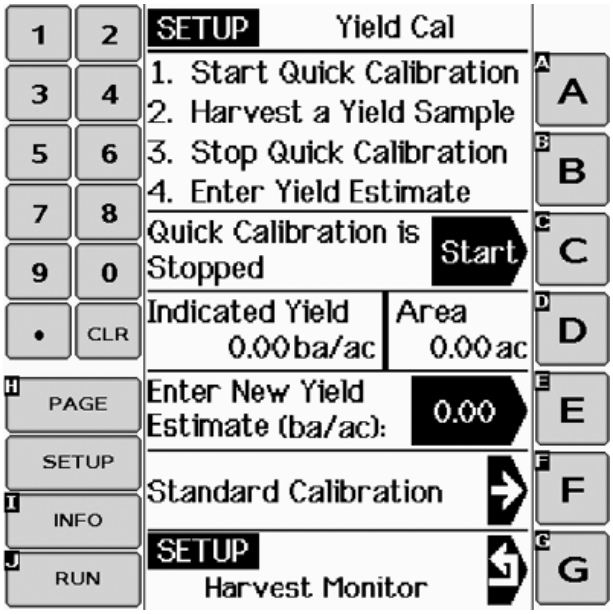
If standard calibration has been performed operator does not need to run quick calibration process.

NOTE: Always read the text to the left of the START/STOP arrow. This explains the current status of calibration. Arrow changes back and forth between START and STOP. When yield calibration is stopped, START arrow is shown. When yield calibration is running, STOP arrow is shown.

STOP arrow—CALIBRATION IS RUNNING. Push button to STOP CALIBRATION.

START arrow—CALIBRATION IS STOPPED. Push button to START CALIBRATION.

1. Press START button.



Quick Cal

NOTE: Pay close attention to area next to button C. When the black arrow states start, that means you have to press the button to start calibration. Area left of the arrow states if calibration is running or stopped.

2. Harvest a yield sample.
3. Press STOP button.
4. Enter yield estimate for sample just harvested.

Continued on next page

CZ76372,0000182 -19-24SEP10-3/5

Standard Calibration

Screen: SETUP—STANDARD CAL

Press: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION >> STANDARD CALIBRATION

NOTE: Always read the text to the left of the START/STOP arrow. This explains the current status of calibration. Arrow changes back and forth between START and STOP. When yield calibration is stopped, START arrow is shown. When yield calibration is running, STOP arrow is shown.

STOP arrow—CALIBRATION IS RUNNING. Push button to STOP CALIBRATION.

START arrow—CALIBRATION IS STOPPED. Push button to START CALIBRATION.

1. Press START button.

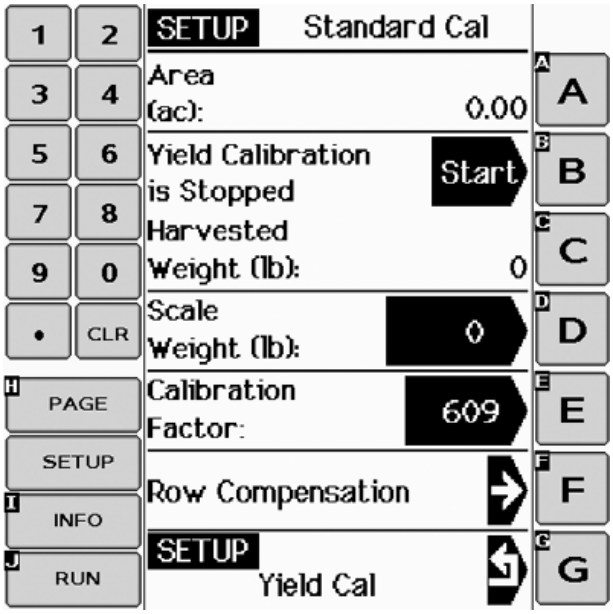
NOTE: If Quick Calibration Procedure is started (on prior page) weight will count up on SETUP - STANDARD CAL screen.

2. Harvest a yield sample.
3. Press STOP button to end procedure.
4. Enter scale weight for sample just harvested.

Harvested Weight—Approximate weight of cotton that has been harvested during calibration process.

Scale Weight—Allows scale weight to be entered after a calibration run is complete. During calibration run, indicates approximate weight of cotton that has been harvested.

Calibration Factor—Allows mass flow sensor to read accurately. Value will be updated automatically by calibration procedure. This value can also be adjusted manually.



Standard Cal

7760 Cotton Picker Round Module Calibration Instructions:

(Make sure the accumulator and bale chamber are empty before harvesting)

1. Push START button.
2. Harvest a yield sample of one to four round modules (Stop harvesting before completing the last full module).
3. Press STOP button to end procedure (Empty accumulator and perform a manual wrap).
4. Enter scale weight for sample just harvested (Use weight of round module or truck load for calibration weight).

Continued on next page

Manual Adjustment of Calibration Factor

Screen: SETUP—STANDARD CAL

Press: SETUP >> HARVEST MONITOR >> YIELD CALIBRATION >> STANDARD CALIBRATION

NOTE: If scale weight is more than 50% higher or lower than displayed weight, system will not allow entry of scale weight. It is recommended that you review harvesting procedures and verify vehicle hauling cotton away from picker is also following correct procedures. At that time, repeat calibration procedures.

Do not change calibration factor in the middle of a field.

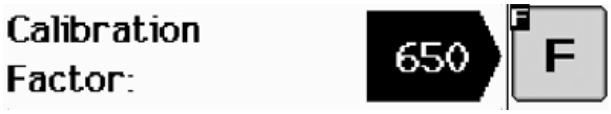
Always read the text to the left of the START/STOP arrow. This explains the current status of calibration. Arrow changes back and forth between START and STOP. When yield calibration is stopped, START arrow is shown. When yield calibration is running, STOP arrow is shown.

STOP arrow—CALIBRATION IS RUNNING. Push button to STOP CALIBRATION.

START arrow—CALIBRATION IS STOPPED. Push button to START CALIBRATION.

A new calibration factor can also be entered manually. To calculate calibration factor, divide weight shown on display by new weight on scale ticket. Multiply result by

PC12881 —UN—24SEP10



Calibration Factor

displayed calibration factor (see example below). This is the new calibration factor.

To manually enter a calibration factor:

1. Press CALIBRATION FACTOR button to change calibration factor.
2. Using numeric keypad, input calibration factor.
3. Press CALIBRATION FACTOR button to enter new value.

Displayed Calibration Factor (800) **X** New weight of cotton from scale ticket (4830) **/** Weight of cotton shown on display (5125) **=** New Calibration Factor (754)

Example:

Displayed Calibration Factor = 800

800 is factory default value for calibration factor.

Weight of cotton shown on display = 5125

New weight of cotton from scale ticket = 4830

New Calibration Factor = 754

CZ76372,0000182 -19-24SEP10-5/5

Tillage Operation

Select: TILLAGE

Select Type

- Primary Tillage
- Rotary Hoe
- Row Crop Cultivation
- Secondary Tillage
- New

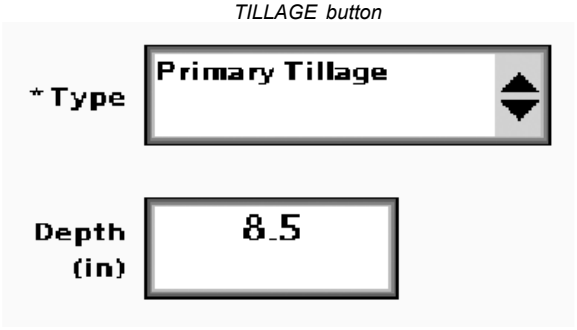
Select Depth

1. Enter number on keypad.
2. Select ACCEPT.

PC10857TX —UN—30MAR10



TILLAGE button



PC10857TY —UN—30MAR10

OUO6050,000126C -19-11MAY10-1/1

Map Based Prescriptions

Prescriptions

Application Plans from desktop software can be applied using selected implement control units.

Map-based prescriptions are compatible with the following equipment:

- SeedStar Generation II (gray Boxes on planter frame) (1900 carts PIN 690101 and higher, and all 1910 carts) with Variable Rate Drives. Application Plans can be in seeds per hectare (acre).
- SeedStar 2 planters with Variable Rate Drives
- Gen2 1900 and 1910 model air carts with variable rate drives and SeedStar 2 air carts with variable rate drives. Air Carts **must** have Variable Rate Drives. Application Plans **must** also be created with mass or weight units (ex. kilograms/hectare or pounds/acre). Application plans cannot be in liquid or seed count form. Multiple prescriptions can be applied simultaneously by creating an operation for each tank.
- Task control unit compliant implements
- Sprayers and SprayStar Gen IV
- 3rd-Party Controllers: Ensure that accurate data is recorded by setting control unit rate units equal to Application Plans. 3rd-Party Controllers compatible with the following list of variable rate control units:
  - Raven 440, 450, 460, 660
  - SideKick
  - GreenSeeker
  - Rawson Accu-Rate and Accu-Plant
  - New Leader Mark III and Mark IV
  - LH Technologies
- GreenStar Rate Controller

NOTE: 3rd-Party control units are control units using RS232 connection (Field Doc Connect) and ISOBUS compliant control units supporting Task Controller functionality.

NOTE: Depending on capability of control unit; seed, dry product and liquid can be applied.

NOTE: It is not possible to run prescriptions of two seperate ISO implements or two Field Doc Connect implements. However it is possible to run prescriptions for multiple operations performed by a single implement (multiple operation implement).

Setup Prescriptions

Client, Farm, Field, and Task Setup

NOTE: See GreenStar 3 Basics and Pro General Setup, RESOURCES and CONDITIONS button for more information on setting up Client, Farm and Field.

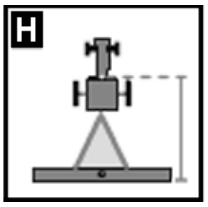
1. Select RESOURCE and CONDITIONS button.

PC8676 —UN—05AUG05



RESOURCE/CONDITIONS button

PC8677 —UN—05AUG05



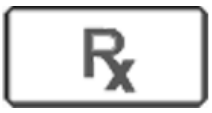
EQUIPMENT button

PC8678 —UN—05AUG05



DOCUMENTATION button

PC8704 —UN—17AUG05



PRESCRIPTIONS button

2. Select or Enter Client, Farm, Field, and Task.
3. Select EQUIPMENT button.
4. Setup recording source and implement width.
5. Select DOCUMENTATION button.
6. Choose an operation type. Example seeding or product application.
7. Select PRESCRIPTIONS button.
8. Select the PRESCRIPTION from the PRESCRIPTION drop-down box.

Prescription Multiplier

IMPORTANT: If using John Deere sprayer, rate knob must be set to AUX.

If using John Deere AirCart or Planter, set desktop software as Active Rate.

If using a 3rd-Party control unit, see the operator manual of the control unit.

Continued on next page

NOTE: 3rd-Party control units are control units using RS232 connection (Field Doc Connect) and ISOBUS compliant control units supporting Task Controller functionality.

If applying multiple prescriptions, operator must choose a prescription for each operation. Example—air cart with a prescription for each tank.

If applying the same product from two of more tanks, operator needs a prescription for each tank.

Prescription Override or Multiplier

Select a rate to override the prescription.

Increase or decrease the prescription rate by 15%. All rates in the prescription are adjusted by 15%.

Select ENTER button.

Prescription Overview Background Layer

Map Setting Tab

The operator can select the prescription map as the background layer in the map settings page when a prescription is being applied. Aerial images can also be used as a background layer. As applied data will show over the prescription layer as it is recorded.

To select the prescription as a background layer:

Select: GREENSTAR 3 PRO > MAPPING > MAP SETTINGS

Then choose from the from the BACKGROUND drop-down menu.

For more information on Maps refer to the Maps section of this operator's manual.

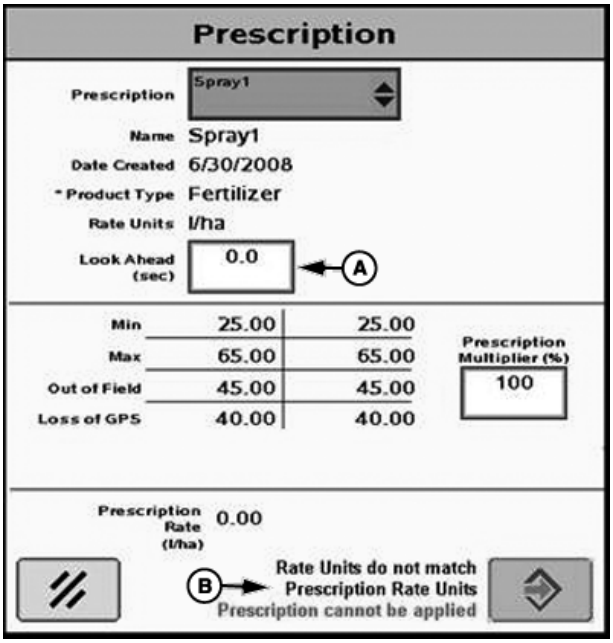
CZ76372,00002B4 -19-30MAR11-2/3

In the Look Ahead input box (A), enter the number of seconds to look ahead for prescription rate changes. This is an adjustment to compensate for the delay between the control unit making the rate change and the solution pump responding. This should be between 0 and 4 seconds. Default is 0.0 seconds.

NOTE: Text (B) will be displayed and the accept button will become inactive when prescription base units do not match, i.e. liquid units vs. weight units or gallons vs. pounds. Correcting the base unit measurement mismatch will allow the prescription to be applied.

To convert prescription shapefiles, select "Shapefile" from the drop-down menu and select the enter button. This will take you to the Shapefile Conversion Homepage.

A—Look Ahead (Seconds) **B—Text with Accept button**



PC10857QW —UN—14SEP09

CZ76372,00002B4 -19-30MAR11-3/3

Shapefile Converter

The Shapefile Converter converts shapefile prescriptions to a form that can be used in the GreenStar 3 System. Not all desktop software solutions are compatible with the GS3. The Shapefile Converter allows prescription shapefiles to be converted from many different types of farm management software solutions.

With shapefiles being the most common form of prescription format, it is important to provide this capability with the GreenStar 3 Display. The conversion process converts shapefile prescriptions into a acceptable (.fdShape) file format and saves the files in the “GRx” folder on the USB drive.

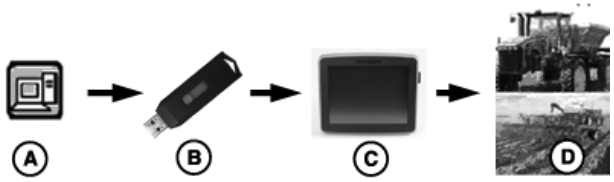
Shapefile Converter Process

Supported Shapefile format: ESRI format, WGS-84 non-projected

NOTE: Most farm management software has the capability to create a shapefile in WGS-84 non-projected format. To confirm the prescription shapefile from the 3rd Party software program is compatible, test a file using the Shapefile Converter before field application.

NOTE: The GS3 can support up to 125 shapefiles per USB drive.

PC12853 —UN—31AUG10



A—Desktop Software other than Apex
B—USB Flash Drive
C—GS3 Display
D—GreenStar Prescription Application

NOTE: The Shapefile Converter can ONLY be used for prescription shapefiles.

NOTE: An “Rx” folder must be created on the USB flash drive. All prescription shapefiles must be saved to this folder. This is the location the GS3 will be referencing to import the prescription shapefiles.

NOTE: There will need to be two folders on the USB drive. The “Rx” folder will contain the shape files and the “GRx” folder will contain the converted files that the GS3 will use.

Continued on next page

CZ76372,0000329 -19-14JUN11-1/6

Shapefile Conversion Home Page

NOTE: Shapefiles must be in the Rx folder on the USB Drive.

1. Select the **Shapefile** you would like to convert from the drop-down menu.
2. Enter a **Name** (name automatically populates and can be edited).
3. Select the **Column** (select the column that contains the product rate).

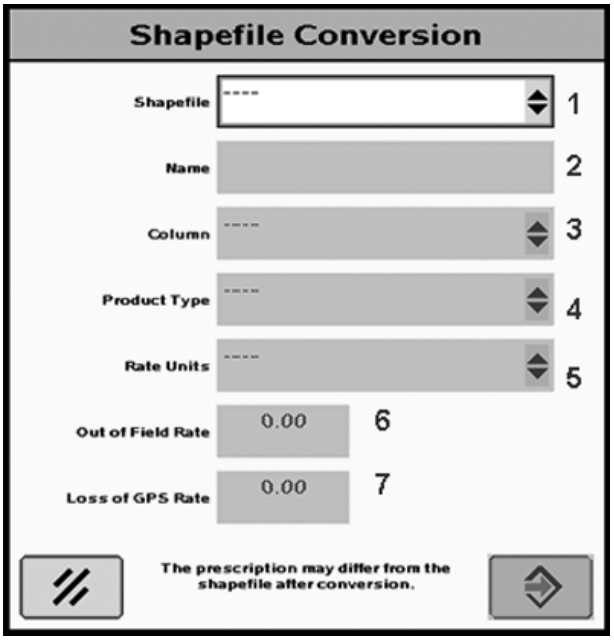
IMPORTANT: Selecting the wrong column results in under or over application of product.

NOTE: The unit system setting (English or Metric) on the GS3 display must match the shapefile unit system.

4. Select the **Product Type** (chemical, fertilizer, or seed).
5. Select the **Rate Units** (pounds, tons, ounces, or seeds per acre).

IMPORTANT: Selecting the wrong units result in under or over application of product.

6. **Out of Field Rate** (default rate control unit uses if outside the field boundary).
7. **Loss of GPS Rate** (default rate control unit uses if GPS signal is lost).



Shapefile Conversion Home Page

8. Once steps 1-7 are completed, select ENTER button.
9. To cancel all changes select the cancel button.

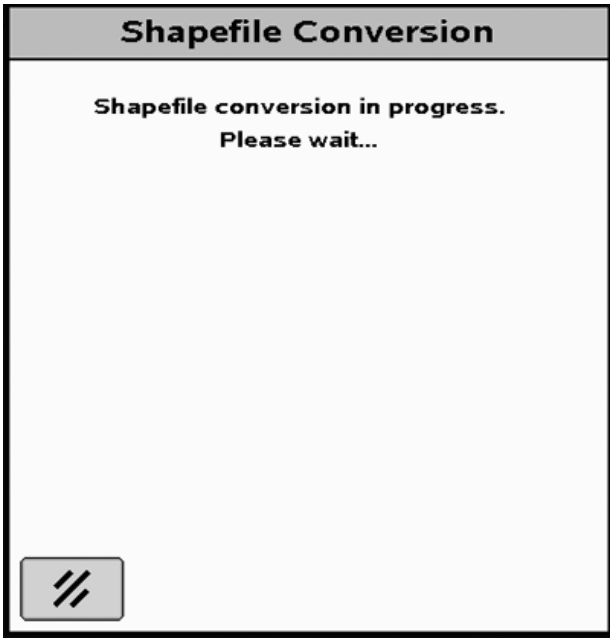
CZ76372,0000329 -19-14JUN11-2/6

Shapefile Conversion in Progress

Once the correct shapefile is selected and the values have been entered correctly in the Shapefile Conversion Page, the shapefile conversion process begins.

NOTE: NOTE: The shapefile conversion process could take up to 30 seconds.

You can cancel the shapefile conversion process by selecting the cancel button . Selecting the CANCEL button takes you back to the Shapefile Conversion Page.



Continued on next page

CZ76372,0000329 -19-14JUN11-3/6

Shapefile Conversion Failed

If a shapefile cannot be converted, this screen appears. There are 7 different errors:

- File is missing or corrupt.
  - Make sure the matching .shp, .shx, and .dbf files are on the flash drive.
  - Include matching .shx and .dbf files or the system cannot convert the shapefile.
  - Make sure that files are in the Rx folder on the USB flash drive.
- Shapefile error.
  - Shapefile format is not compatible.
- Database file error, incorrect version.
  - dBase file version number incorrect.
- Database file error, file format incorrect.
  - dBase file format is incorrect.
- Index file error
  - shp file header does not match .dbf file header.
- Projection file error.
  - Validate the shapefile is formatted in WGS84 projection.
- Unknown error
  - The file could not be validated.
- If you get any of these messages, select ENTER button to go back to the Shapefile Conversion Page.

NOTE: If engine is shut off during the shapefile conversion process, shapefile must be reconverted.


Shapefile Conversion
The shapefile conversion failed.
A file is missing or corrupt. Make sure .shp, .shx, .dbf files are on the card.

PC12748 —UN—27AUG10

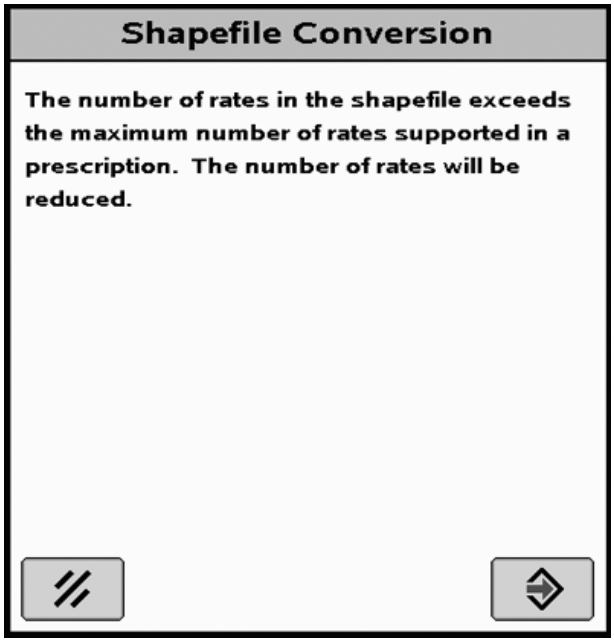
Shapefile Failed Screen

CZ76372,0000329 -19-14JUN11-4/6

Shapefile Conversion Maximum Number of Rates

If more than 254 rates are present in the shapefile this message appears.

If this message is displayed, the GS3 automatically reduces the number of rates by minimizing the differences between the shapefile and the generated prescription.


Shapefile Conversion
The number of rates in the shapefile exceeds the maximum number of rates supported in a prescription. The number of rates will be reduced.

PC12749 —UN—27AUG10

Maximum Number of Rates Screen

Continued on next page

CZ76372,0000329 -19-14JUN11-5/6

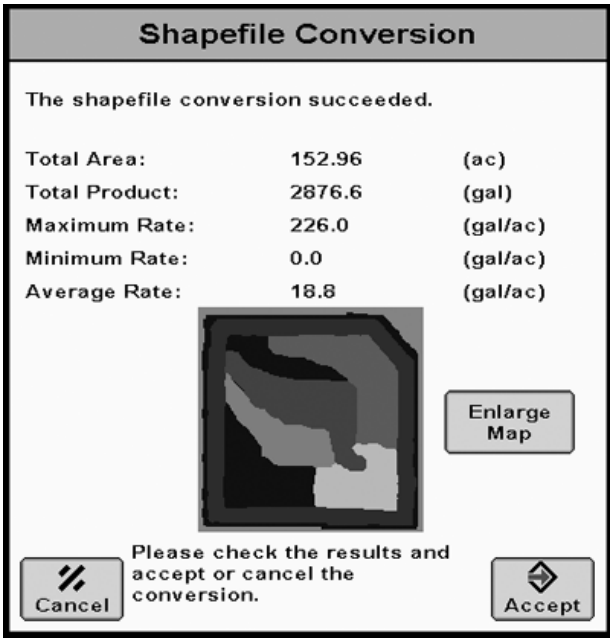
Shapefile Conversion Summary Page

Once shapefile conversion is complete, this screen appears. A preview map of the prescription is displayed. Select the Enlarge Map button to see a more detailed view.

Verify that the information is correct before accepting. Operator must accept to save the converted shapefile.

IMPORTANT: If the ENTER button is grayed out, the product type or rate units were entered incorrectly and do not match the rate units in the original prescriptions. Select the Cancel Button to return to the Shapefile Conversion Homepage to enter the correct product type or rate units.

NOTE: An area of the prescription, that has been assigned a zero rate, will now appear black on your prescription map in the GS3.



PC13626 —UN—14JUN11

Shapefile Conversion Page

CZ76372,0000329 -19-14JUN11-6/6

Connecting 3rd-Party Controllers

IMPORTANT: When connecting with a Rawson controller, turn main switch to OFF before leaving vehicle or performing maintenance.

NOTE: 3rd-Party controllers are controllers using RS232 connection (Field Doc Connect) and ISOBUS compliant controllers supporting Task Controller functionality.

NOTE: Please visit www.StellarSupport.com for list of third party compatible controllers.

Data from 3rd-Party controllers can be recorded directly from the following controllers:

NOTE: Go to www.StellarSupport.com to find the latest information about approved platforms.

- Raven 440, 450, 460, 660
- SideKick
- GreenSeeker and YARA N-Sensor
- Rawson Accu-Rate and Accu-Plant
- New Leader Mark III Mark IV
- Dickey-John Seed Manager
- Vanguard PIC Seed Monitor
- ISOBUS Implement with Task Controller enabled

System will record Actual Rate, Implement Width, and GPS Recording Status (implement switch not required) directly from Field Doc Connect controller.

Task Controller will record all data implements can supply.

Rawson, Raven, and New Leader Controllers are also capable of accepting prescriptions from the GS3 display. (See the Map Based Prescriptions section for more information.)

To setup a Field Doc Connect Controller:

NOTE: You must purchase the harness PF90363 and follow the included instructions for connecting the controller to the display.

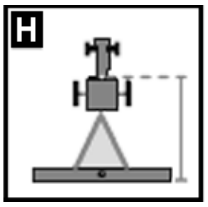
1. Choose a Client, Farm, Field and Task in the RESOURCES softkey.

PC8676 —UN—05AUG05



RESOURCES softkey

PC8677 —UN—05AUG05



EQUIPMENT button

PC8872 —UN—17NOV05



NEXT

PC8649 —UN—01NOV05



ENTER button

2. Press the EQUIPMENT button.
3. Press the COM PORT button.
4. Select manufacturer, model, and Comm Port. Communication Status will show active when data is being sent on selected Communication Port, and inactive when controller is disconnected or not communicating.
5. Press NEXT button.
6. If using a Rawson or New Leader Controller, operator must also enter Mid-point and Step Size.
7. Press ENTER button to finish.

CZ76372,00002B5 -19-30MAR11-1/1

Simultaneous Documentation/Prescriptions with John Deere and 3rd-Party Controllers

NOTE: 3rd-Party controllers are controllers using RS232 connection (Field Doc Connect) and ISOBUS compliant controllers supporting Task Controller functionality.

The GS3 display can simultaneously run documentation/prescriptions for John Deere and 3rd-Party controllers. An example of this is the display recording seed and fertilizer rates from an air cart while also recording anhydrous ammonia rates from a 3rd-Party controller.

Set up the Air Cart or Planter according to instructions in the GS3 operator's manual.

Under EQUIPMENT softkey, MACHINE tab, choose the COM Port button to set up the 3rd-Party controller.

Refer to Field Doc Connect list for approved controllers on www.StellarSupport.com.

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10



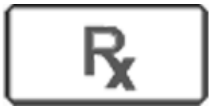
GREENSTAR 3 PRO button

PC8678 —UN—05AUG05



DOCUMENTATION button

PC8704 —UN—17AUG05



PRESCRIPTIONS button

CZ76372,000017B -19-23SEP10-1/1

Other Operation

The OTHER operation tab is used for activities that do not have a task controller associated. Using a self-propelled windrower and recording a coverage map would be one example.

Select or Enter a type.

Select or Enter a name.

Although the other operation tab will not allow yield recording, the following information will be available:

PC10857VN —UN—01APR10



- Area
- Area Remaining
- Time
- Productivitiy

OUO6050,0001271 -19-01APR10-1/1

Surface Water Management

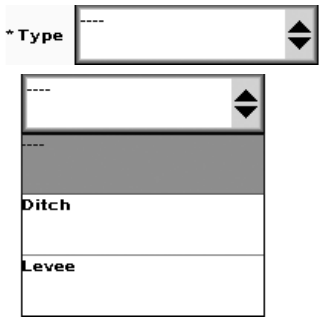
Select: WATER MANAGEMENT > TYPE

Choose DITCH or LEVEE

PC10857VM —UN—01APR10



PC10857VO —UN—01APR10



PC10857VP —UN—01APR10

OUO6050,0001270 -19-01APR10-1/1

Surface Water Management

PC10857VM —UN—01APR10



PC10857VO —UN—01APR10



CZ76372,00002BD -19-30MAR11-1/2

Select: WATER MANAGEMENT > TYPE

Choose DITCH or LEVEE



PC10857VP —UN—01APR10

CZ76372,00002BD -19-30MAR11-2/2

TOTALS button

Totals

The Totals page show the data based on which items in the dropdown menus are selected. For example, when a Harvest task is selected for a farm and field, planting data will not show, and when Crop Totals are shown, information for each particular crop is not broken down by which farm or field the crop was in.

This can be filtered further by filtering by field, crop, and load.

All values shown are for the items that are used for filtering.

ITEM SPECIFICATION

- Area—Area harvested with recording ON
- Date Range—Beginning and ending date of harvest activity
- Average Productivity—The average amount of area harvested per hour when recording is ON
- Moisture—Percent of moisture of the crop as determined by Harvest Monitor
- Yield (dry)—Crop yield as determined by Harvest Monitor if dried down to the standard payable moisture. The standard payable moisture is entered for each crop with desktop software.
- Yield (wet)—Yield of the crop as it comes out of the field
- Productivity—Average wet mass of the crop per hour
- Length of time—Number of hours that recording has been ON
- Fuel Used—Estimated total fuel used
- Mass (dry)—Dry mass as determined by Harvest Monitor if dried down to the standard payable moisture
- Mass (wet)—Wet mass as determined by Harvest Monitor
- Additional items that will show depending on how it is filtered include:
- Client—Anyone, including yourself, that data will be collected for, such as a landlord

PC8663 —UN—05AUG05



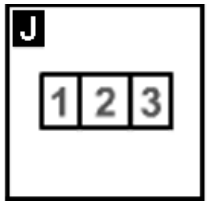
MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8679 —UN—05AUG05



TOTALS button

- Farm—A group of fields that are located near each other
- Field—An area of land which is physically defined by roads, creeks, or other things
- Load—Sub-unit of what is harvested in each field. It could be a grain tank, a truck load, or the entire field
- Area Remaining—The Area Remaining is derived by taking the initial acres and subtracting what has already been harvested. Needs a boundary (or acres entered into desktop software) to be functional.
- Time to Finish—Time to finish is derived by taking the area remaining and dividing by the average productivity. Time for turning, stopping to unload, etc. will not be taken into account. Needs a boundary (or acres entered into desktop software) to be functional.

CZ76372,0000098 -19-09JUL10-1/1

Harvest Totals

Totals

Totals for Harvest Totals screen allows operators to view a variety of operational information.

Harvest - Combine	Harvest - Cotton
Brand	Brand
Variety	Variety
Area	Area
Yield (dry)	Yield avg Seed
Yield (wet)	Max Lint Yield
Dry Mass	Totals Seed
Wet Mass	Min Lint Yield
Moisture	Yield avg Lint
Length of Time	Length of Time
Estimated Time to Finish*	Estimated Time to Finish*
Area Remaining	Area Remaining*
Productivity	Productivity
Productivity	Productivity
Total Fuel Used	Total Fuel Used
Date	Total Bales
	Total Lint
	Date

*Estimated time and area remaining require that an exterior boundary has been selected.

Harvest - Combine	Harvest - Cotton	Harvest - SPFH
Operator	Operator	Operator
Destination	Destination	Destination
Load #	Load #	Load #
Load Name	Load Name	Load Name
Residue Management	Gin Turnout %	

Load Information

In addition, the totals will be filtered on the Load level. If Harvest is not selected in the Operation list box, the Load list box should be disabled.

PC8663 —UN—05AUG05



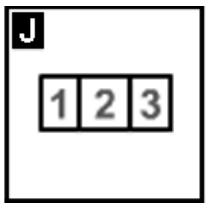
MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8679 —UN—05AUG05



TOTALS softkey

To filter totals, select criteria desired, and press enter.

To clear totals press and hold 0 button.

Interaction with Harvest Monitor

NOTE: Today, with the current GreenStar display and mobile processor, when Harvest Doc is on the bus with Harvest Monitor, the Totals come from HarvestDoc not Harvest Monitor. The same shall be with Documentation on the GreenStar display family. The user shall not be able to see Harvest Monitor totals through the Original GreenStar Monitor, an auxiliary Original GreenStar Display, or 70 Series Command Center unless Documentation is off.

CZ76372,0000130 -19-13AUG10-1/1

General Overview

Combine—Specific Items are done through Harvest Monitor (calibrating yield, moisture, selecting the size and type of header, etc.)

1. Select Menu.
2. Select Original GreenStar Monitor.
3. Slect Setup/Harvest Monitor.

PC8663 —UN—05AUG05



Menu

PC12866 —UN—16SEP10

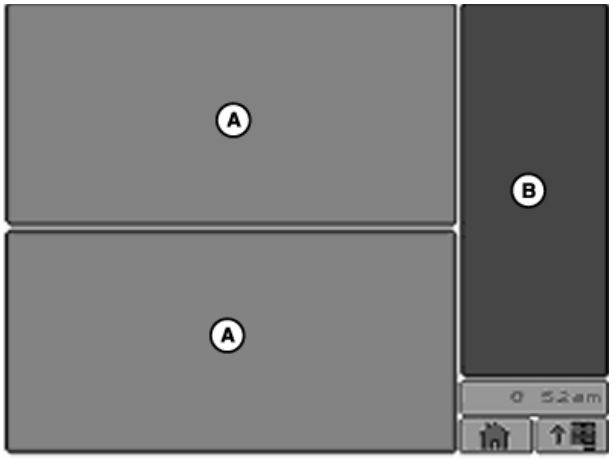


ORIGINAL GREENSTAR MONITOR button

CZ76372,000016E -19-16SEP10-1/1

Set Up Totals on Home Page

1. Select Menus > Layout Manager.
2. Totals can be displayed at various locations on the screen, but are configurable only on a half screen (A) or on the softkey region (B). To learn more about setting up different areas of the screen, see the Layout Manager section in this operator's manual.
3. Select the GreenStar 3 Pro button and find Totals section.
4. Select Totals section and then select the Enter button to complete setup.
5. In the example shown here, the flags screen go into the blue region and the yield map into the red region.



PC10857ID —UN—25MAR09

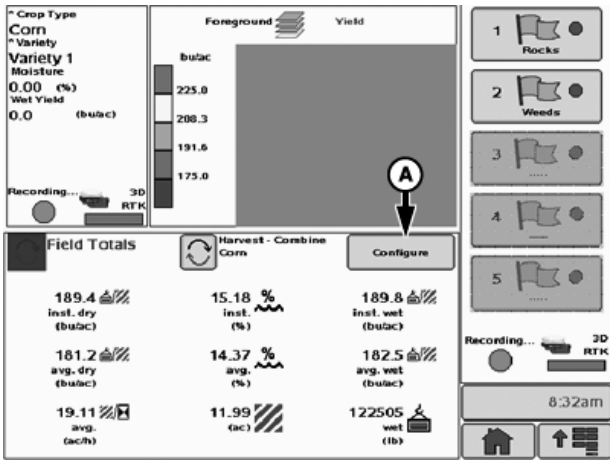
A—Half Screen **B—Softkey Region**

CZ76372,000009A -19-09JUL10-1/1

Configuring Totals

1. Select the Configure button.

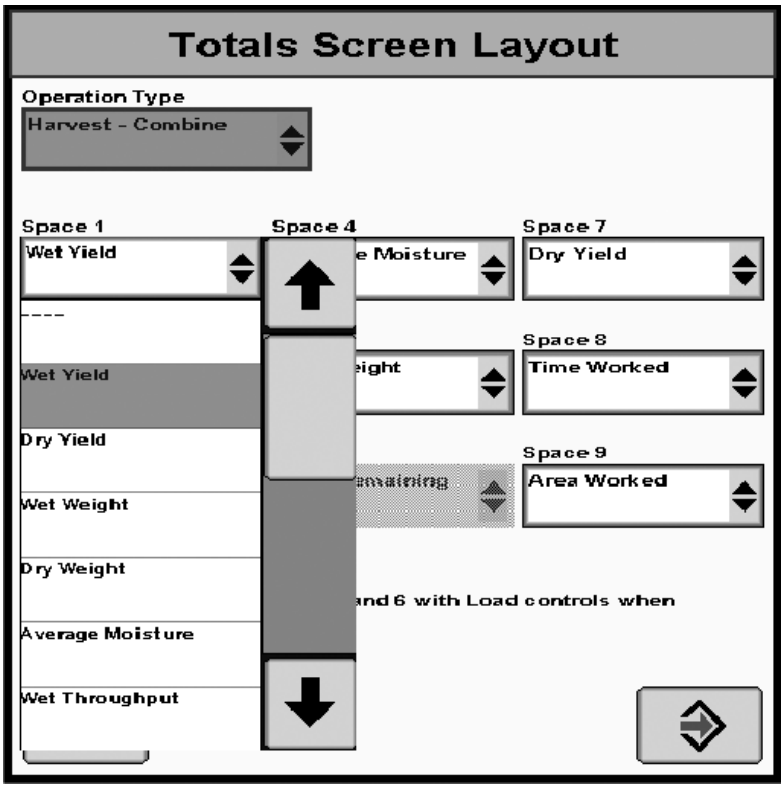
A—Configure Button



PC10857IE —UN—25MAR09

Continued on next page

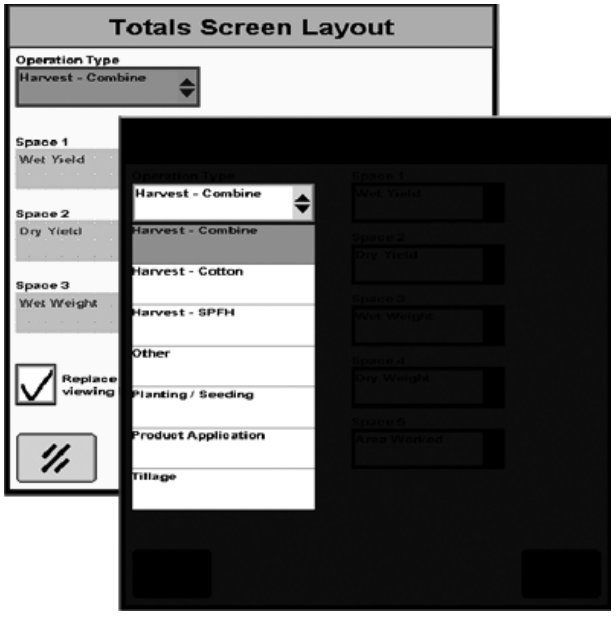
OUO6050,0001076 -19-06APR09-1/4



PC10857IG —UN—25MAR09

2. The configuration is different for each type of operation. This example sets up the Harvest-Combine Operation Type

   Each field on the screen can be changed to show the information that you want to see for that operation.

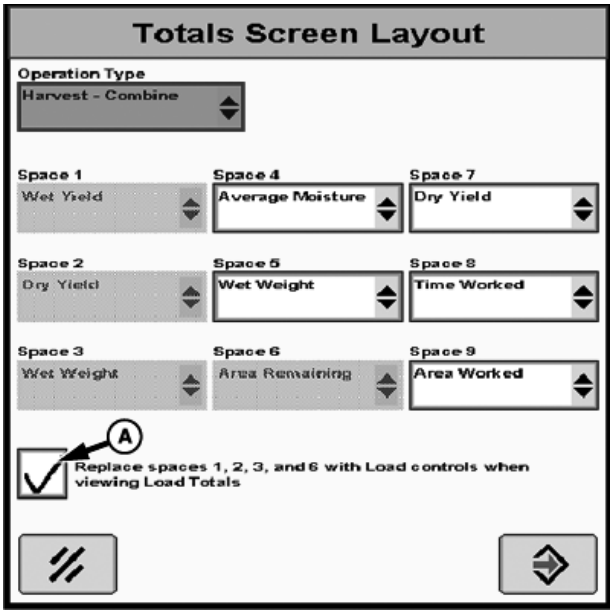


PC10857IF —UN—25MAR09

Continued on next page

3. For Harvest operations, checking the box at lower left replace some of the spaces with the controls for recording load data.

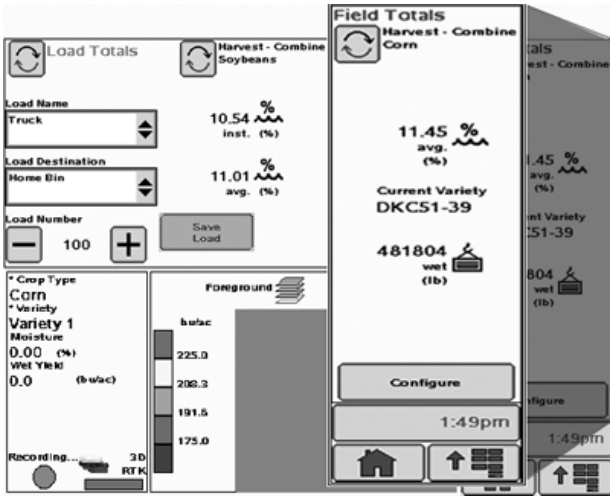
A—Load Controls Check Box



PC10857IH —UN—25MAR09

OUO6050,0001076 -19-06APR09-3/4

4. The Totals screen for the softkey region can be configured in the same way. On both screens, some of the regions can be left blank, to make the remaining numbers stand out more clearly. In this way, the home page can be built to meet the needs of the individual operator, with either a few key numbers or with a detailed screen that shows everything happening in the operation.



PC10857NZ —UN—18MAY09

OUO6050,0001076 -19-06APR09-4/4

Viewing Current Harvest Data

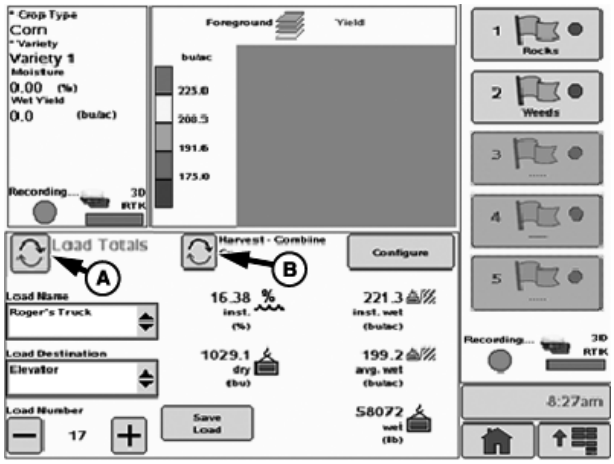
Once the Home Page has been created and configured, it can be used to show the operation current data. This data can be toggled between the current Field data and the current Load data by pressing the button (A).

When looking at the field data, it is possible to view either the totals for all varieties or toggle to view the last variety harvested. This is done by pressing button (B).

It is only possible to view data for a variety that has already been harvested. If there is variety in the field that has not been harvested, it does not appear in the rotation.

A—Field/Load Toggle Button

B—One/All Varieties Toggle Button



PC10857IJ —UN—25MAR09

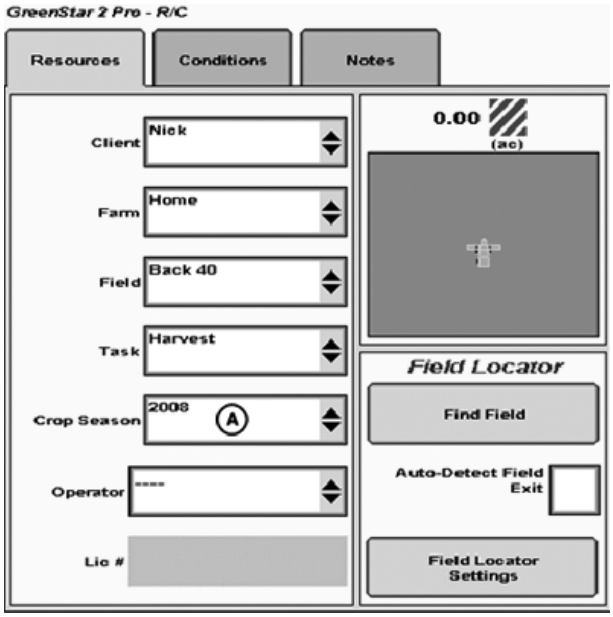
OUO6050,0001078 -19-25MAR09-1/1

Crop Season

GreenStar 3 Pro field documentation tracks the crop season for each operation (A). This allows you to report on everything that you did for a crop, even if some of the operations occurred in the previous year. Common examples of this are fall tillage operations and winter grain crops.

The **Crop Season** is selected on the Client/Farm/Field page from the drop-down. This value is automatically set to the current calendar year unless the operator changes it.

A—Crop Season



PC12832 —UN—30AUG10

CZ76372,0000157 -19-30AUG10-1/1

Overlap Control

NOTE: When using Overlap Control, header width is divided into sections automatically with a maximum of eight sections and a minimum section width of 1.5 m.

Overlap Control automatically adjusts the width of the header as the harvester moves over areas that have already been harvested. This feature improves the accuracy of the area and yield data.

Platform	
Platform Width	Number of Sections
Less than 6.1 m (20 ft)	3
6.1 — 7.3 m (20 — 24 ft)	4
7.6 — 8.8 m (25 — 29 ft)	5
9.1 — 10.4 m (30 — 34 ft)	6
10.7 -11.9 m (35 — 39 ft)	7
12 m (40 ft) and greater	8

Row Crop Head	
Row Spacing	Rows per Section
38 cm (15 in.)	4
51 cm (20 in.)	3
76 cm (30 in.)	2

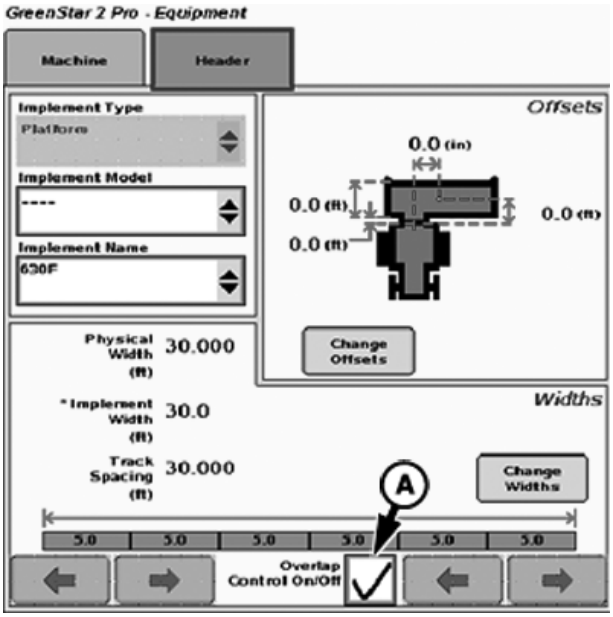
Overlap Control is turned on by checking the box on the Header setup screen. When it is turned on, the manual controls for changing the header width are disabled.

Overlap Control ensures that harvested area does not extend over or out of field boundaries or extend into an interior boundary.

- Exterior boundary—only one exterior boundary can be defined for a field.
- Interior boundaries—multiple interior boundaries can be defined and named for a field.

Boundaries, though optional, can be helpful when using Overlap Control. For example, an exterior boundary can help ensure there is no area outside of the field is included in the yield calculation if a section of the head or platform extends over the boundary. Similarly, an interior boundary allows you to drive across a waterway and help ensure that each section is off while crossing.

- If a boundary is unloaded into desktop software, it can either be set up on the display in the field, or in the desktop software and saved to the USB drive. If interior boundaries are used, those fields must also have an exterior boundary.
- If data is not unloaded into desktop software, and interior boundary can be created on the display without having an exterior boundary.



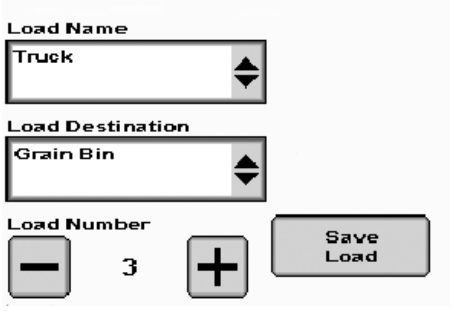
PC12833 —UN—30AUG10

A—Overlap Control Check Box

CZ76372,0000158 -19-29SEP10-1/1

Recording Load Data

Loads are a powerful feature of the GreenStar 3 Pro field documentation system. They allow the user to capture data for specific parts of a field. This can be used to track the crop that is sent to various destinations, such as bins or an elevator. They can also be used to trace scale tickets back to the field.



PC10857IM —UN—25MAR09

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CZ76372,0000159 -19-04OCT10-1/4

Loads are identified by their name and number and by the crop type and crop season. The destination can have more than one load with the same load name.

PC10857IN —UN—25MAR09

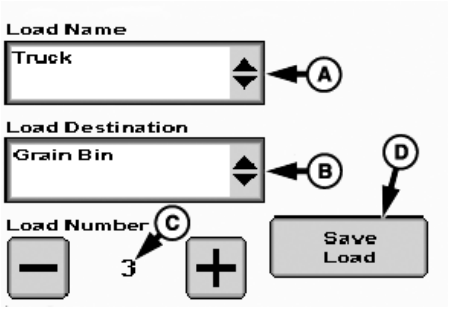
Example	
Crop Type	Corn
Crop Season	2008
Load Name	Truck 4
Load Number	17

CZ76372,0000159 -19-04OCT10-2/4

The operator can set the Load Name, Number, and Destination at any time before the load is saved. The Load Name (A) and Load Destination (B) are selected from the drop-down lists. New names and destinations can be created at any time. They can also be saved from Apex or other compatible desktop software. The Load Number (C) is selected using the + and – buttons to increase or decrease the number. The number can also be selected and changed from 1-9999.

Load totals continue to accumulate until the operator presses the Save Load button (D). When the load is saved, the accumulated total is stored to the internal memory and the Load Number automatically increases by one. The load data can be viewed on the display or saved to a USB drive to be used by Apex or another compatible desktop program.

NOTE: Apex is not available in all EAME countries.



PC10857IO —UN—25MAR09

A—Load Name
B—Load Destination
C—Load Number
D—Save Load

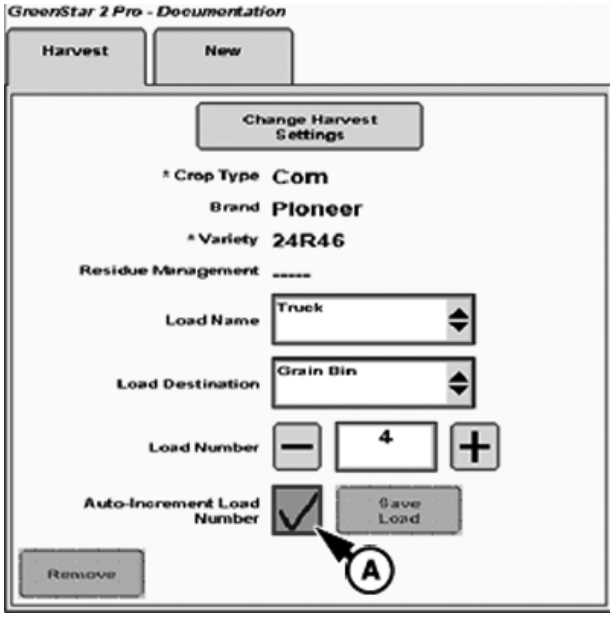
CZ76372,0000159 -19-04OCT10-3/4

NOTE: Auto-increment is available only on combines.

The operator can select the Auto-Increment Load Number check box (A) on the Harvest operation setup screen. If this box is selected, the system automatically increases the Load Number by one every time the grain tank auger stops.

When Auto-Incrementing is selected, the Save Load button is disabled.

Auto-Increment Load Number Check Box



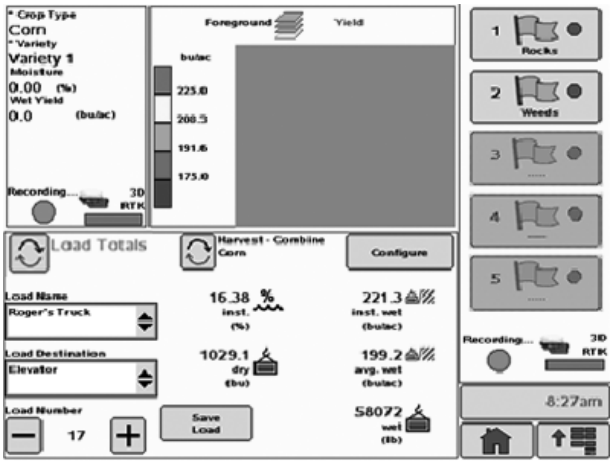
PC12834 —UN—30AUG10

CZ76372,0000159 -19-04OCT10-4/4

Adding to an Existing Load

The Load Number can be changed back to a number that has already been recorded using the + and – buttons. This is useful if Auto-Incrementing is turned on and it is necessary to stop or swing the auger in before the bin is emptied.

The Load Data screen on the home page always shows the totals since the last time the load was saved. If the load number is changed to an existing load, the totals that have already been saved are not reflected on the screen. To see these values, use the J button to view the reports.



PC10857IQ —UN—25MAR09

OUO6050,000107C -19-11MAY09-1/1

Additional Load Tips

A load does not have to be a combine bin load. If your operation is more concerned with truck loads, you can track the crop in each truck by using one number until the truck is emptied.

The Load Name and Load Destination fields do not have to have the name and destination in them. If tracking where the crop is going is important to you and you do not care about how it gets there, use the Load Name field for the destination. For example, an operation that is delivering to several elevators can create a Load Name for each elevator.

A single load can have totals from more than one field. This allows you to finish a field and start another while tracking the load in a truck or cart.

OUO6050,000107D -19-06APR09-1/1

Viewing Current Totals Reports

The GreenStar 3 Pro field documentation system allows you to view the totals for the operations that you are performing. This is a powerful tool that can display totals by field, crop, variety, and load.

Totals reports can be viewed by selecting the J button from the GreenStar 3 Pro screens.

PC8663 —UN—05AUG05



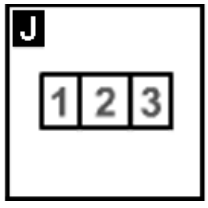
MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8679 —UN—05AUG05



TOTALS softkey

Continued on next page

CZ76372,000015A -19-30AUG10-1/3

The Totals screen shows the current totals. The operation type; client, farm, and field, and crop season are displayed in the box on the left (A). This box also contains the navigation buttons that allow you to change the contents of the screen.

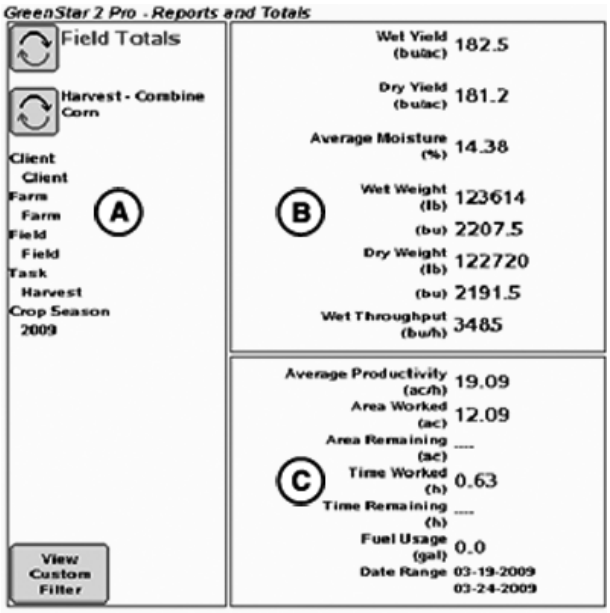
The upper box on the right (B) shows the operational data. This depends on the type of operation selected, but normally reflects either the application or harvest data.

The box on the lower right (C) displays productivity data. This information is displayed for all operation types.

The time and area remaining are dependent upon the field boundary. This information is not available if the field does not have a boundary.

The fuel data is approximate and tends to reflect a greater quantity than used.

A—Box on Left
B—Upper Box on Right
C—Lower Box on Right

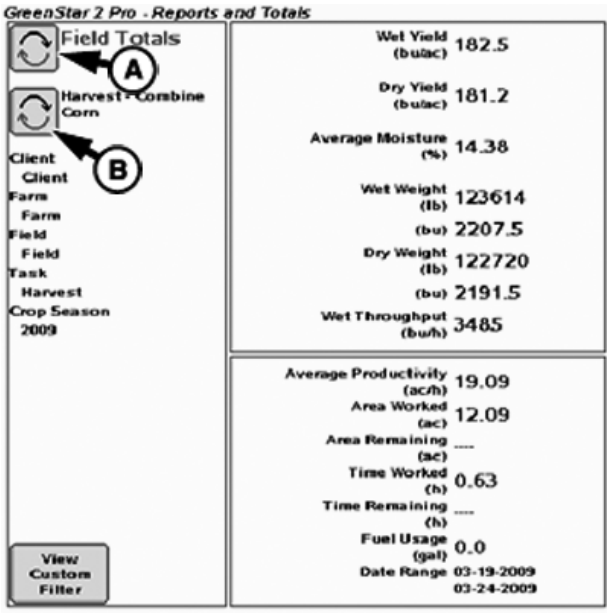


PC12835 —UN—30AUG10

CZ76372,000015A -19-30AUG10-2/3

Pressing the button next to **Current Field Totals** (A) changes the screen to display load totals. The load totals screen is the same as the field totals, but only displays the totals accumulated since the last time the **Save Load** button was pressed.

A—Field/Load Totals
B—Harvest-Combine Corn



PC12836 —UN—30AUG10

CZ76372,000015A -19-30AUG10-3/3

Viewing Filtered Totals Reports

The GreenStar 3 Pro field documentation system also allows you to view totals for other operations or to view the accumulated data for several fields or even several years. This allows you to have some of the power of the Apex desktop system in the cab.

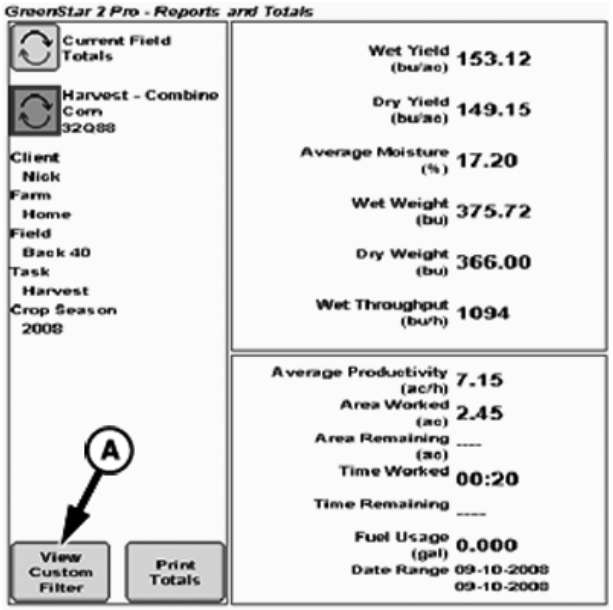
NOTE: Apex is not available in all EAME countries.

> *The filtered totals reports can only operate on data that is present on the display. If the display has been cleared or if another profile has been loaded, that data is not available for reporting.*

The filtered totals are seen by selecting the View Custom Filter button (A) at the bottom of the totals screen.

This will bring up the Custom Filter dialog box.

A—View Custom Filter button



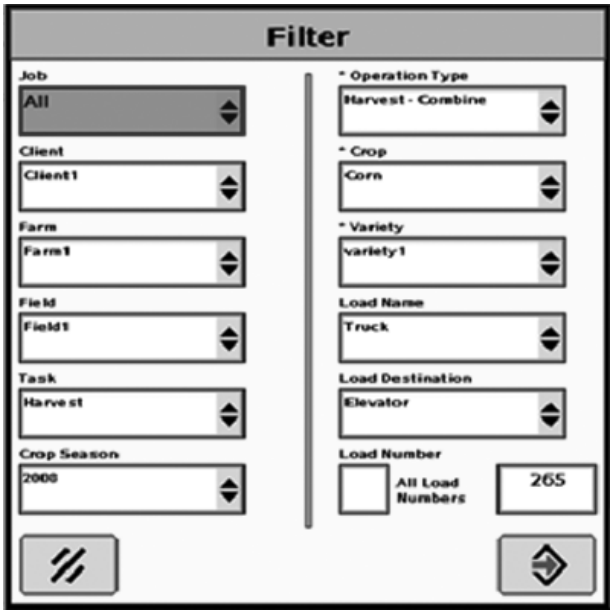
CZ76372,000015B -19-04OCT10-1/3

The Custom Filter allows you to choose the criteria for the data that you want to see. You must select are Operation Type first, as this causes some of the data filters to change. For harvest operations, the Crop and Variety are required, but you can select All for the Variety.

All of the other fields can either be left as All, or specific values can be chosen.

Press the Enter key to create the report.

If you have a lot of data in the memory, generating the report takes longer, particularly if you are performing an operation at the same time. While the report is being created, you can view other screens normally. The display lets you know when the report is complete.



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CZ76372,000015B -19-04OCT10-2/3

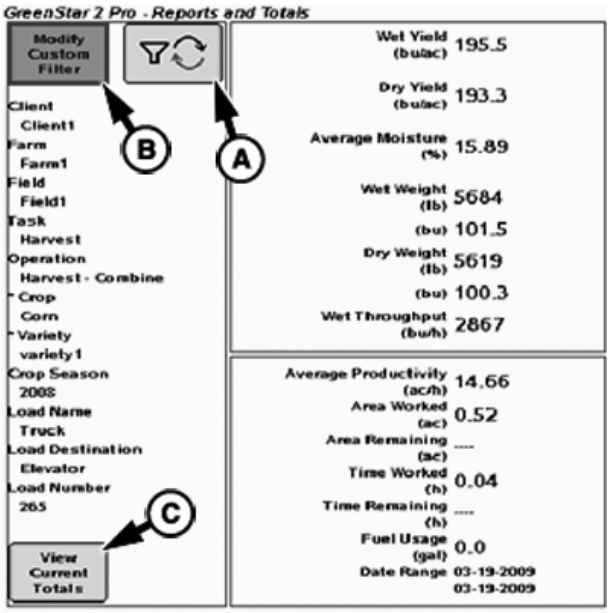
When you return to the report screen, you see the results of your custom filter. This screen is like the current totals screen, with the exception that the left-hand box now shows the custom fitter that was used.

The results on the custom filter report include the current totals for the operation that you are performing, if it matches the filter that you specified. The current totals are included as of the time that the report was created. If you would like to refresh the screen to show more recent data, you can press the **Refresh filter** button at the top of the screen (A).

You can change the custom filter by pressing the **Modify Custom Filter** button, which brings up the custom filter dialog box again.

You can also return to the current totals by pressing the **View Current Totals** button at the lower left of the screen.

A—Refresh Filter Button
B—Modify Custom Filter Button
C—View Current Totals Button



PC12839 —UN—30AUG10

CZ76372,000015B -19-04OCT10-3/3

Swath Control

Theory of Operation

Swath Control is an optional software activation that can be purchased and activated on a display.

Swath Control is an operator assistance tool that can turn machine and implement sections on and off automatically.

Swath Control utilizes the following components for operation:

- Global Positioning System (GPS) receiver
- Display activated with Swath Control
- Capable control units

Swath Control utilizes the previous as-applied coverage and boundaries (exterior, interior, and exterior headland) to determine section status.

CZ76372,00002F2 -19-28APR11-1/1

Compatibility

IMPORTANT: Swath Control only functions on vehicles and implements with compatible software.

- JD 4000 Series self-propelled sprayer with SprayStar version 5.11 or higher.
- All versions of SpreadStar™
- JD Horst 700i, 800i and 5430i Sprayer (Europe Only)
- All versions of Rate Controller
- All versions of Rate Controller - Dry
- All versions of SeedStar 2: Planters, Air Carts, and 1990CCS. (SeedStar 2 planters must be equipped with Individual Row Unit Clutches)

SpreadStar is a trademark of Deere & Company

- Additional ISOBUS compatible implements are listed on www.StellarSupport.com.

To view available software and enter code to activate Swath Control see OBTAINING ACTIVATION CODE & ACTIVATING SOFTWARE IN DISPLAY. It is found in Display Setup section.

NOTE: A 15 hour demo activation is available on every new display. The 15 hours count down when Swath Control is activated, and the master switch is on. When the demo period is over, Swath Control is unavailable until the activation code is purchased through a John Deere Dealer, and entered into the display.

CZ76372,000029B -19-28APR11-1/1

Boundaries

Boundaries, though optional, can be helpful when using Swath Control. Using Minimize Overlap, an exterior boundary can help ensure there is no application outside of the field if a section extends over the boundary.

Similarly, a setting of Minimize Overlap on an interior boundary allows driving across a waterway and helps ensure that each section is off while crossing. See GREENSTAR GENERAL BOUNDARY section for more details.

OUO6050,00011F8 -19-10SEP09-1/1

Coverage Map

The As-Applied coverage map is used to show where the vehicle has applied product. The Coverage Only is used to show where the vehicle has been in the field (same coverage map that is displayed on guidance pages). See the GreenStar General - Maps Tab section of this Operators Manual for details on Coverage Only and As-Applied coverage maps.

CZ76372,000019E -19-29SEP10-1/1

Accuracy

The overall Swath Control system accuracy is dependent upon many variables.

Swath Control System Accuracy = GPS Signal Accuracy + Machine and Implement Setup + Display Setup + Field Conditions + Product Rate.

It is important to:

- Ensure Machine and Implement are set up properly (according to manufacturer's operators manual).
- Ensure the implements' wear parts are in good working condition and correctly spaced.
- Understand how field conditions and applied product rate affect machine dynamics.
- Ensure GPS Receiver went through a warmup period upon start-up to ensure Swath Control performance.
  - As the GPS Accuracy increases (SF1, SF2, and RTK), Swath Control reaction accuracy will also increase.
  - GPS shading (such as trees or buildings) affects Swath Control accuracy.
- Ensure Swath Control settings, Machine, and Implement dimensions are set up properly in the display.

CZ76372,00002F3 -19-28APR11-1/1

Limitations of Swath Control

There are some limitations of Swath Control to be aware of.

GPS Accuracy can cause map and boundary shifts

The boundary and coverage map location are based off of an initial reference point and all other mapped points within the coverage map are positioned relative to this reference point.

On start-up, the system looks to see if there is an existing coverage map for the current field. If there is existing coverage for the current field, Swath Control uses the original reference point from that existing coverage map. If there is no existing coverage for the current field, then the system looks to see if there is a boundary for the current field. If there is a boundary for the current field, Swath Control utilizes the center of the field boundary as the reference point. If there is no boundary for the current field, the reference point is created with the first recorded point for the current field.

Poor GPS accuracy can affect boundaries and coverage maps. It is critical to have good GPS accuracy when using Swath Control. If the reference point for a Swath Control boundary or coverage map is created with poor GPS, boundary and coverage map issues (gaps, overlaps, shifts) occur as GPS accuracy increases over time.

The same issue could be seen during field operation when shading, low satellite availability, or loss of signal are experienced. To minimize a map or boundary shift, good GPS accuracy is needed, especially when establishing the reference point. Having Optimize Shading checked helps prevent errors due to the drastic change in signal level.

Coverage Map and actual product application shows small gaps the full width of the boom or implement

If the coverage map and actual product application shows small gaps the full width of the boom or implement when exiting the headlands or other previous coverage with Swath Control, do the following checks.

1. Verify that you are running the most current version of GS3 Display software. This will ensure that the most recent software features and enhancements can be utilized.
2. Verify driving habits.
   - Operators slowing down when entering the headlands and rapidly accelerating when exiting the headlands increases the severity of small gaps in the coverage map. Swath Control looks at the machine's speed and the Turn on and off times to determine when to start and stop applying and painting the coverage map. If the machine changes speed during this time period, the map and product application may not start or stop at the correct time. It is very important that speed remains constant when entering and exiting headlands.

     Turning around in the headland at 8 mph, with a Turn on time of 2 seconds, the machine travels approximately 23.5 ft. at 8 mph in 2 seconds. If the operator accelerates during this time, the machine covers this distance in less than 2 seconds. This causes delayed product application and mapping resulting in a gap.

   - The type of end turns driven can affect Swath Control as well. The software can predict the future position of the boom relatively well during 180 degree turns, but not during light bulb turns. If light bulb turns are made, skips in the coverage map may be more severe when exiting the headlands.
3. If there are still gaps in the coverage map, but the product application is physically correct, the turn on/off times and overlap settings may not be set correctly. Reference the Turn On/Off settings and Overlap settings sections for adjustments.

Prescriptions

When utilizing prescriptions, Swath Control commands sections off in zero rate prescription areas.

CZ76372,00002F4 -19-29APR11-1/1

Required Setup

IMPORTANT: Some operators connect two separate fields into one using a “land bridge” between them. Product may still be applied over this strip of land if Swath Control is left on. To prevent unexpected coverage, always turn Swath Control or the master switch OFF while transporting between fields.

NOTE: Documentation is recommended, but not required when operating Swath Control. If a client, farm, field are selected only the coverage or as applied map for that field are displayed. When using Headland Control a Client, Farm, Field, Field boundary, and Exterior Headland must be defined.

The following items are optional when operating Swath Control:

- Client, Farm, and Field (if not selected, all coverage maps are saved to undefined Client, Farm, and Field and data is not able to be saved to desktop software)
- Documenting field operational data
- Field Boundaries
- As-applied Map
- Prescription
- Setup data from desktop software

Activation

The 2630 Display requires a Swath Control Activation. Every Display has a 15 hour demo activation from the factory.

See Display Setup > Display Software Activations section in this Operators Manual for details.

Machine and Implement Offsets are critical for Swath Control to function properly.

It is highly recommended to physically measure the machine and implement offsets. The entire distance from the GPS receiver to the point that product is applied has to be accounted for in the machine and implement dimensions. Correct dimensions will ensure optimal Swath Control performance.

Reference the Machine Setup and Implement Setup sections in this OM for complete details on how to correctly measure the dimensions.

CZ76372,00002CB -19-28APR11-1/1

Swath Control button

Settings in the Swath Control button are used to fine tune Swath Control for optimal performance.

PC8663 —UN—05AUG05



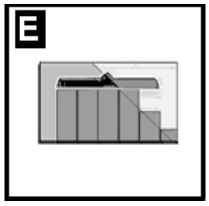
MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 button

PC8905 —UN—18JAN06



SWATH CONTROL button

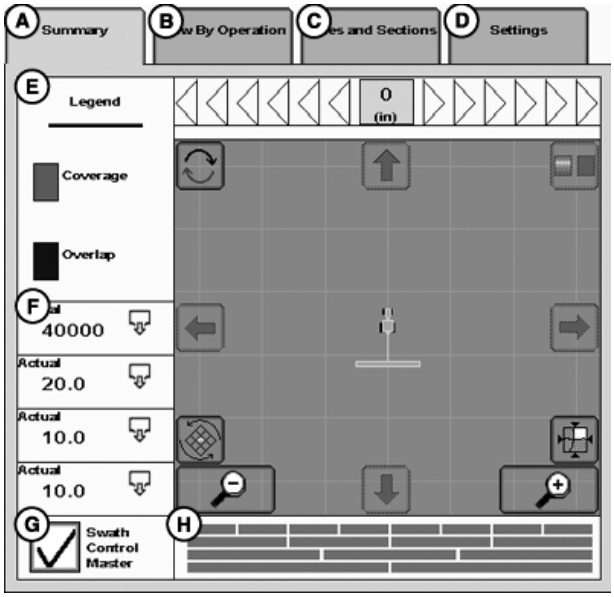
CZ76372,00002F5 -19-28APR11-1/1

Summary

See Maps Tab in GreenStar General section of this operator's manual for details on buttons contained inside the Map view.

Along with the map, the Summary screen also displays coverage map legend (E), as-applied rates for different operations (F), Swath Control Master On/Off (G), and Section Status bar (H).

A—Summary Tab
B—View by Operation Tab
C—Rates and Sections Tab
D—Settings Tab
E—Coverage Map Legend
F—As-applied Rates
G—Swath Control Master On/Off
H—Section Status bar



PC13237 —UN—13APR11

Summary Screen

CZ76372,00002C7 -19-13APR11-1/1

Section Status Bar

The Section Status bar displays different states depending on a couple factors. The bars are colored blue if the operation that they are connected to has liquid units (gal, L), and then are colored green if the operation has dry units (lbs, kg, seeds).

The Status bars will also be displayed with:

- (A) a solid box when the section is enabled and turned on
- (B) a hashed box when the section is enabled by the implement controller but not turned on

PC13243 —UN—28APR11



Section Status Bar

A—Solid Box
B—Hashed Box
C—Outlined Box

- (C) an outlined box when the section is disabled by the implement controller

CZ76372,00002D1 -19-28APR11-1/1

View by Operation

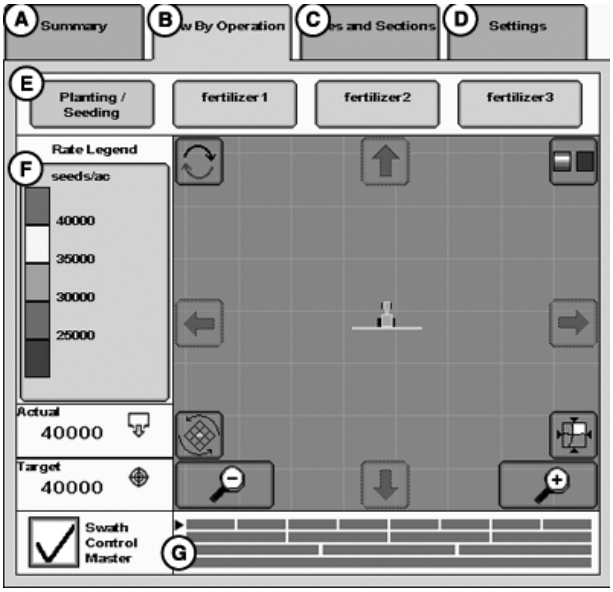
The View by Operation tab displays similar information to the Summary tab, but only displays one operation at a time.

Operation buttons (E) above the map are labeled and arranged in the same manner that operation tabs are organized in Documentation. Choose between different operations by selecting the desired button. The currently selected Operation button will be highlighted.

Along with the Operation button, the implement sections for the current operation will be noted with a triangle (G) in the Section Status bar.

If the legend (F) has been selected to display rates, the legend will be changed to a button. Select it to change the high and low values for the legend range.

A—Summary Tab
B—View by Operation Tab
C—Rates and Sections Tab
D—Settings Tab
E—Operation Selection buttons
F—Rate Legend
G—Section Status bar



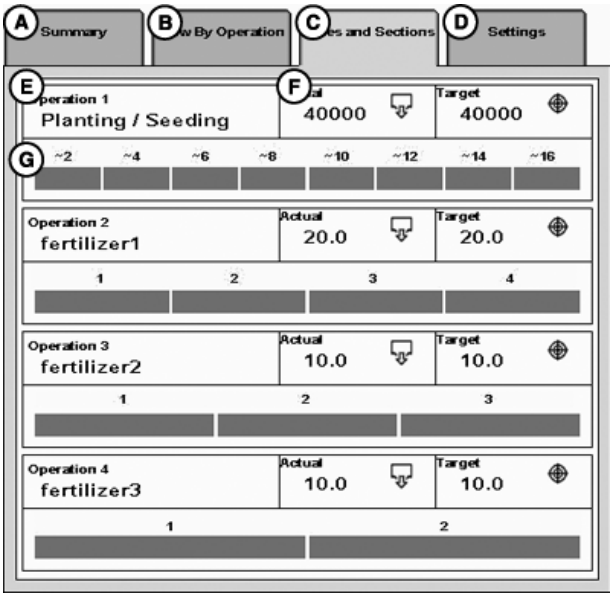
View by Operation tab

CZ76372,00002C8 -19-14APR11-1/1

Rates and Sections

The Rates and Sections tab displays each operation with the same name (E) that is displayed on the Documentation tabs. Along with the operation name, Actual and Target rates (F) and then the operation Sections (G) are shown.

A—Summary Tab
B—View by Operation Tab
C—Rates and Sections Tab
D—Settings Tab
E—Operation Name
F—Actual and Target Rates
G—Operation Sections



Rate and Sections tab

CZ76372,00002C9 -19-28APR11-1/1

Settings

Swath Control Settings allow the operator to fine tune the settings to optimize Swath Control performance.

Enable/Disable

Enable Swath Control by placing a check in the Swath Control Master checkbox.

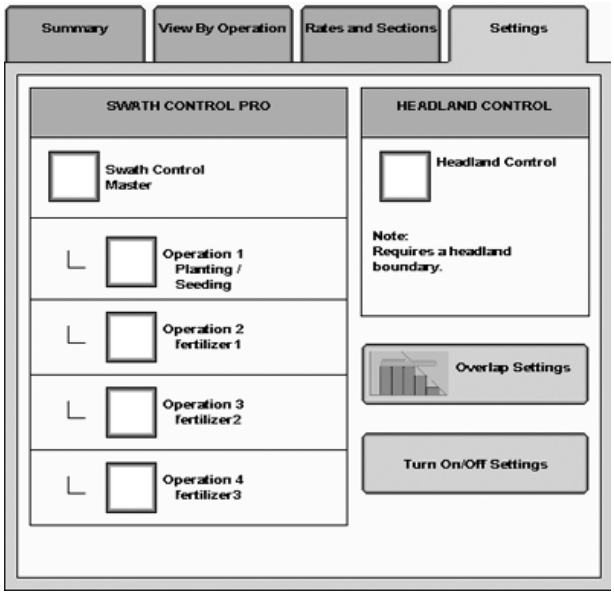
Individual operations can be disabled for Swath Control by removing checks in corresponding boxes. Operations displayed are the same operations shown in Documentation and match up with Documentation tabs.

NOTE: Swath Control Master and at least one operation must be checked for Swath Control to operate.

Headland Control

Check this box to turn on Headland Control. Uncheck the box to turn it off. Headland Control allows Swath Control to turn on and off at the Headland Boundary to apply product only to the main portion of the field while not applying to the headland area. Product can be applied to the headland with Headland Control turned off.

NOTE: Headland Control is only available if Swath Control is activated. Deactivating Swath Control also disables Headland Control even if the corresponding checkbox is still checked. If the operator changes the field in the display, headland control checkbox is deactivated. If the operator wants to use headland control in the new field, the headland control checkbox needs to be activated again.



Swath Control Settings

CZ76372,00002CA -19-28APR11-1/1

Overlap Settings

The system can be configured to operate in three modes:

- Minimize Skip
- Minimize Overlap
- Percent Overlap

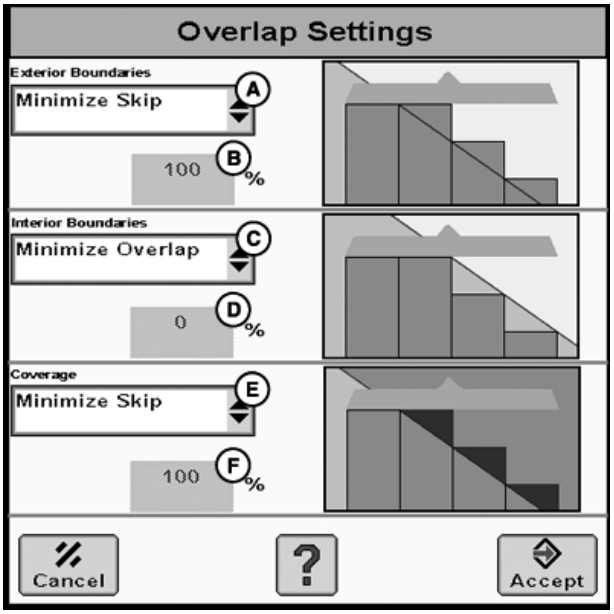
Minimize Skip ensures product coverage up to field boundaries, interior boundaries, and as applied area reducing skips. Minimize Skip can result in over application and is 100% overlap.

Minimize Overlap ensures that product coverage does not extend over or out of field boundaries. It also ensures that product coverage does not extend into an interior boundary. This setting could cause skips along field boundaries or interior boundaries depending on the angle a boundary is crossed. Minimize Overlap can result in under application and is 0% overlap.

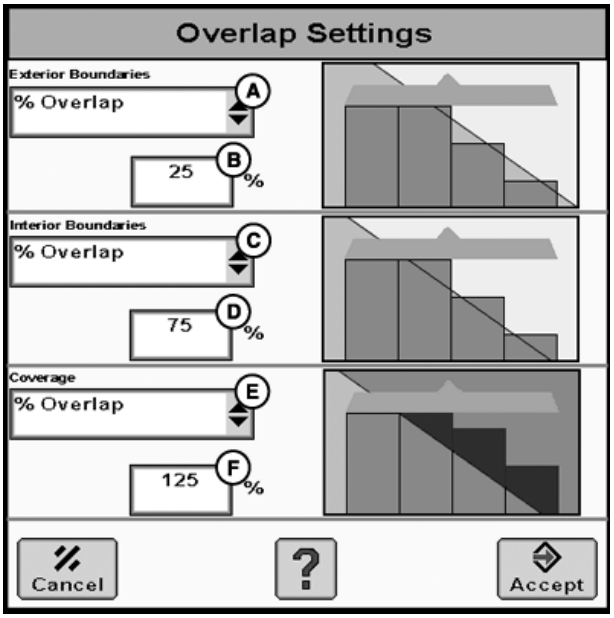
Percent Overlap allows settings from 0—125% Overlap.

NOTE: To achieve increasing amounts of overlap utilize the Percent Overlap between 100-125%. This will allow the operator to achieve desired results and prevent skips by creating intentional overlap. It is not recommended to utilize the Turn on and Turn off times to achieve intentional overlap; this can cause additional system complications.

A—Exterior Boundaries Drop-Down Menu
B—Exterior Boundaries Percent Input Box
C—Interior Boundaries Drop-Down Menu
D—Interior Boundaries Percent Input Box
E—Coverage Drop-Down Menu
F—Coverage Percent Input Box



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CZ76372,00002C6 -19-14APR11-1/1

Turn on and Turn off Settings

(A) Turn on time (sec.): defaults to 1, but can be changed between 0.3—15, in increments of 0.1 seconds.

(B) Turn off time (sec.): defaults to 0.6, but can be changed between 0.3—15, in increments of 0.1 seconds.

The operator can adjust the Turn on and Turn off settings to fit a specific machine. The Turn on and Turn off settings are to compensate for average physical machine reaction time (Electrical & Mechanical) for applying product. Keep in mind that the reaction time does NOT increase as ground speed increases. The physical reaction time remains constant for that machine configuration. The machine travels more, or less, distance while the reaction is taking place at different ground speeds.

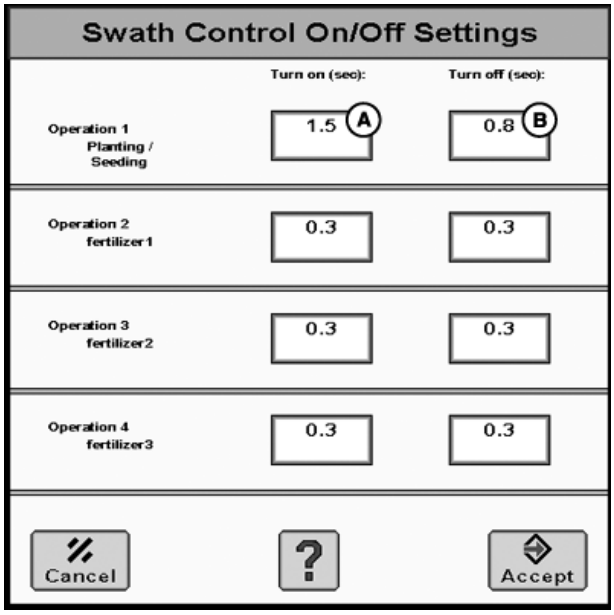
NOTE: It is not recommended to utilize the Turn on and Turn off times to achieve intentional overlap; this can cause additional system complications. To achieve increasing amounts of overlap utilize the Percent Overlap between 100—125% . This will allow the operator to achieve desired results and prevent skips by creating intentional overlap.

The best method to determine the correct Turn on and Turn off times is to turn on or off a section manually. Measure the time from when the switch is actuated to when product starts or stops. For a sprayer measure the time from when the switch is actuated to when product starts and stops reaching the crop. Enter Turn on and off times to the nearest 0.1 of a second.

If the Turn on time is set to 0.3 seconds, the command signal is sent when the system estimates the section to be 0.3 seconds from the boundary or non covered area. The coverage map begins painting 0.3 seconds after the command signal is sent. If the actual machine reaction time is 0.8 seconds, the machine will travel 0.5 seconds past the boundary or into the non covered area before applying. In this situation the coverage map began painting before the actual application started, therefore the two did not match.

As the Turn on time increases, the command signal is sent earlier as the boundary or non-covered area is approached. If the Turn on time is 1.0 second, the command is sent 1.0 second before the implement is expected to reach the boundary or previously covered area. The coverage map will start painting 1.0 second after the command signal is sent and Swath Control expects the machine to begin applying at this time as well because the operator entered a Turn on time of 1.0 second.

The more constant the ground speed is kept when entering or exiting boundary or previous coverage area,



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the more accurate Swath Control is. If the machine speed is drastically changing while entering or exiting a boundary or previous coverage area, Swath Control cannot anticipate that change because it estimates your Turn on and off position based on current position, direction, and speed.

Once a machines Turn on and Turn off time is determined, it remains the same unless a dramatic system change is made to the machine. For example, a change in system plumbing affects the average physical machine reaction time.

NOTE: When using multiple Swath Control capable control units, the Turn on or off time is most accurate at the primary operation (location of implement offsets). All other operations are less accurate.

Each operation can be assigned its own On and Off time. Set the primary operation on/off time using the directions above. For the secondary operations, follow the directions above and then adjust as necessary to compensate for distance from primary operation and the distance traveled by the implement(s). Speed will greatly influence theses on/off times. Keep this in mind when adjusting the times for secondary operations.

NOTE: See the "Understanding Swath Control Turn on and Turn off Settings" later in this section for examples of Turn on and off times when multiple applications exist.

CZ76372,00002CF -19-28APR11-1/1

Enabling

Enabling The System for a Seeding Operation

ALL of the following are required for Swath Control to function:

- The implement must be lowered into the ground.
- Section switches are on.
- Master Implement switch must be on.
- Swath Control Master and at least one Operation checked.
- Vehicle speed must be greater than 0 km/h (0 mph) for all planting and seeding operations.
- Vehicle is within 7.64 km (4.75 miles) of the field reference point. Refer to Limitations of Swath Control section for more information about reference points.

Enabling the System for a Product Application Operation

ALL of the following are required for Swath Control to function:

- Section Switches are on.
- Master Implement Switch is on.
- Swath Control Master and at least one Operation checked.
- Speed is greater than 0.8 km/h (0.5 mph).
- Vehicle is within 7.64 km (4.75 miles) of the field reference point. Refer to Limitations of Swath Control section for more information about reference points.

NOTE: If IBS (Index Boom Section) or a boom section switch has turned off a section, swath control does not turn it on. If Swath Control has turned off a section, IBS does not turn it back on.

Enabling the System for Non-Deere ISO Implements (Europe Only)

- Swath Control check box is checked
- Implement is set up correctly according to the implement manufactures Operator Manual.

CZ76372,00002D0 -19-28APR11-1/1

Understanding Swath Control Turn On and Turn Off Settings

NOTE: The Turn on and Turn off times in the examples in this section are not true for every machine. It is important that you determine the Turn on and Turn off times for your particular machine and implement.

Swath Control operates based on the drop point and turn on and off time of the primary function.

Seeding Tools

Planters average 6—12 km/h (4—7 mph) while planting and have minimal machine electrical clutch reaction delay times (under 0.8 seconds usually). The largest delay time is usually from the time the seed leaves the meter disk, travels in the seed tube, and reaches the soil. At a 10 km/h (6 mph) planting speed, you travel 2.8 m (8.8 ft.) in one second. That's 280 mm (10.5 in.) of travel distance every one-tenth of a second. (Example - Entire seed delay time from the switch being selected in the cab, the clutch stops, the seed meter stops, and all the seed has reached the soil; time elapsed 0.8 seconds) You can see that changing 0.3—0.8 seconds on the look ahead time can dramatically change the location of your seed placement when turning on or turning off. On average, most row-crop planters generally set a turn off time to 0.3 seconds and a turn on time between 0.5—1.0 seconds. On average, most air carts set a turn off time at 0.6 seconds and a turn on time at 1.0 second.

Minimize Skip (100% overlap) on ranked tools (seeding tools with multiple ranks). Set swath settings for minimize Skip (100% overlap). Swath Control maps to the rear rank on the tool so the Turn on time must be increased to account for rank spacing. See figure at the end of this section.

The goal is to compensate for Rank Delay spacing by entering ranked turn on for the "Turn on" setting. Turn on + Rank Delay = Ranked Turn On. Maintain a constant turn around speed to keep the Turn On time accurate. Examine and adjust the settings before planting.

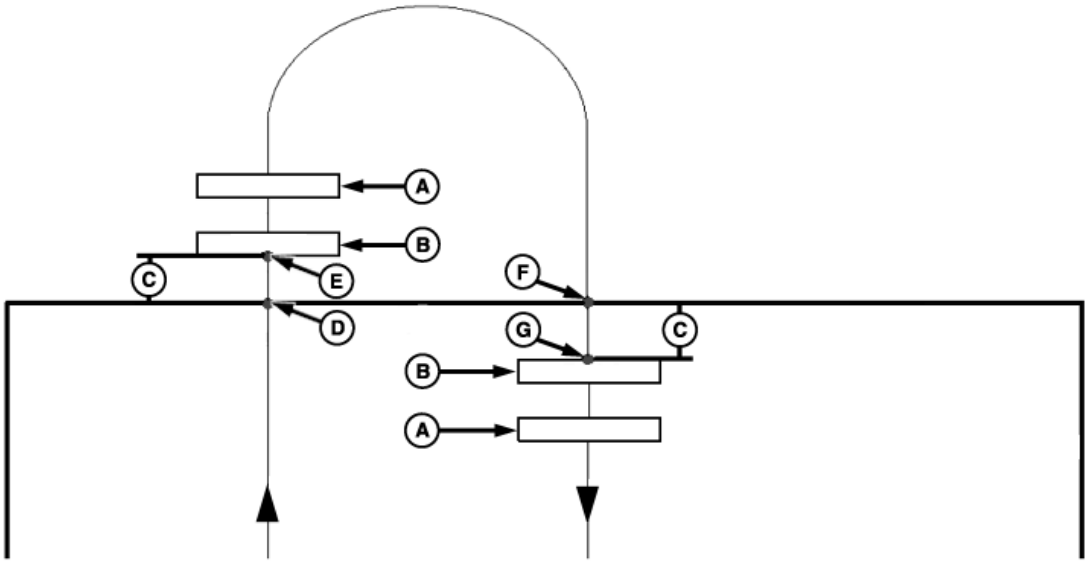
NOTE: Ranked Delay is a time, not a distance, and is affected by speed.

Sprayers

At 24 km/h (16 mph) in a self-propelled sprayer, if the average physical reaction time of the system (turn off command at the multifunction control handle, the boom valve reacts and turns off, liquid flows out of the boom freely until the check valve pressure is met) is 2.5 seconds. The liquid continues to fall to the crop canopy past the 2.5 seconds so the physical overall operational reaction time could be approximately 3.0 seconds in total.

To determine the Turn on time for a sprayer, press the master on switch and measure the amount of time until you start to see product hit the crop. To determine your Turn off time, shut the master off switch and measure the amount of time until you see product stop flowing.

As a rule of thumb, it takes a liquid handling system longer to react when turning on than when turning off due to liquid pressure differentials, so many times the turn on time is slightly greater than the turn off time. Keep in mind that your ground speed only affects the distance traveled while the machine reaction delay is taking place and that the distance traveled varies between turn on and turn off times and from operator to operator.



PC10857WT —UN—07JUN10

NO SWATH CONTROL—Two Ranked Tools Entering Then Leaving Headland

A—Rank 1
B—Rank 2
C—System Delay
D—Switch Off
E—Actual Off
F—Switch On
G—Actual On

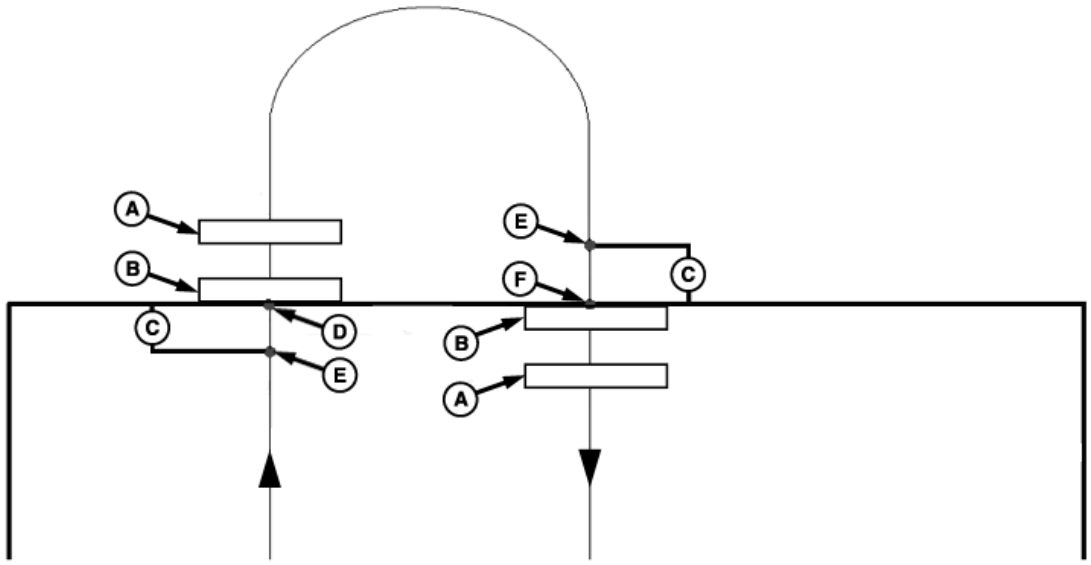
System Delay = Overlap (A) and Overlap (B)

Continued on next page

BA31779,0000174 -19-28APR11-1/4

System Delay = Overlap (A) and Overlap (B)

BA31779,0000174 -19-28APR11-2/4



PC10857WU —UN—07JUN10

NORMAL SWATH CONTROL—Two Ranked Tools Entering Then Leaving Headland

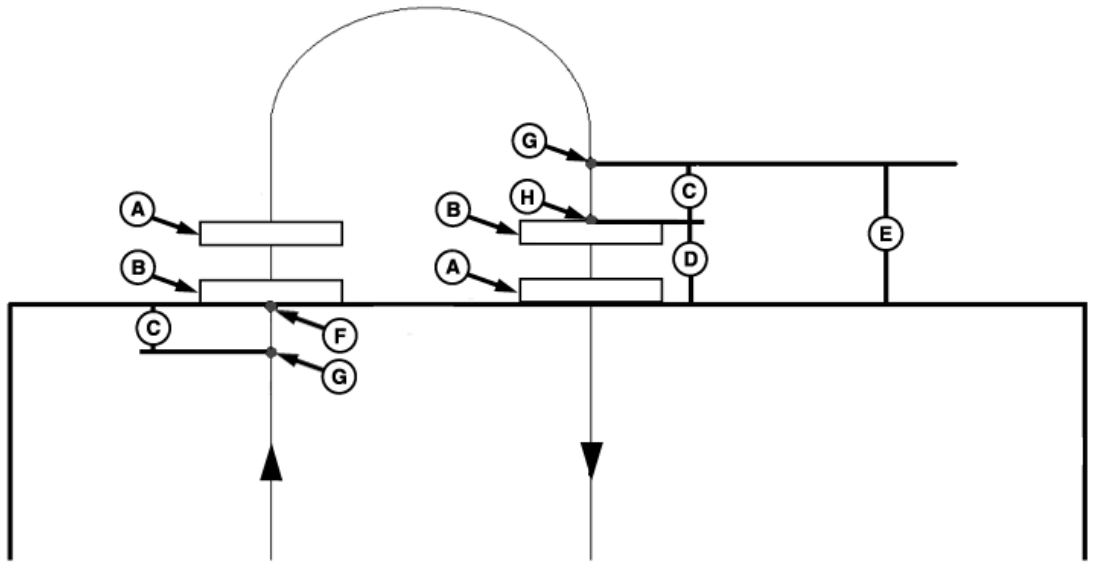
A—Rank 1
B—Rank 2
C—System Delay
D—Actual Off
E—Swath Command
F—Actual On

System Delay = No Overlap (A) and No Overlap (B)

System Delay = Overlap (A) and No Overlap (B)

Continued on next page

BA31779,0000174 -19-28APR11-3/4



PC10857WV —UN—07JUN10

RANKED TURN ON—Two Ranked Tools Entering Then Leaving Headland

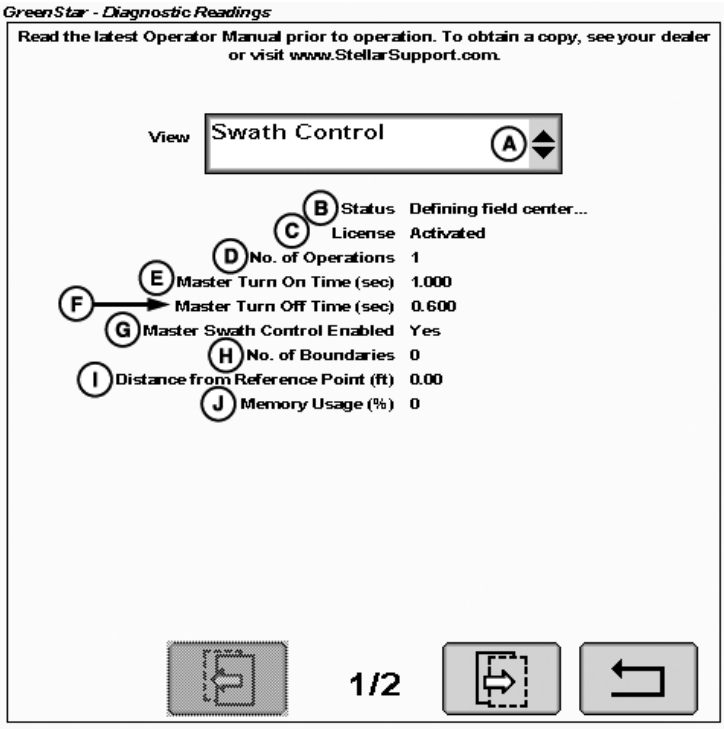
A—Rank 1
B—Rank 2
C—System Delay
D—Rank Delay
E—Ranked Turn On
F—Actual Off
G—Swath Command
H—Actual On

System Delay = No Overlap (A) and No Overlap (B)

System Delay + Ranked Delay = No Overlap (A) and No Overlap (B)

BA31779,0000174 -19-28APR11-4/4

Diagnostic Readings


GreenStar - Diagnostic Readings
Read the latest Operator Manual prior to operation. To obtain a copy, see your dealer or visit www.StellarSupport.com.
View
Swath Control
A
B Status Defining field center...
C License Activated
D No. of Operations 1
E Master Turn On Time (sec) 1.000
F Master Turn Off Time (sec) 0.600
G Master Swath Control Enabled Yes
H No. of Boundaries 0
I Distance from Reference Point (ft) 0.00
J Memory Usage (%) 0
1/2

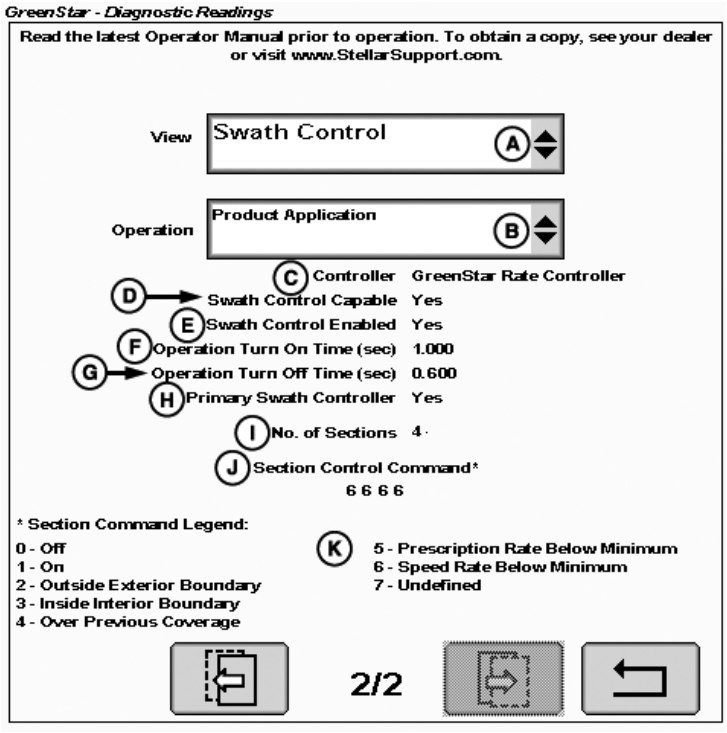
PC13510 —UN—27APR11

GreenStar - Diagnostic Readings 1/2

Select GREENSTAR 3 > DIAGNOSTIC > SWATH CONTROL

- (A) View drop down box – Indictes the type of diagnostics information currently being viewed.
- (B) Status – Indicates the current Swath Control status.
  - Waiting – No Swath Control compatible implement connected to the system
  - Initializing – System is initializing
  - Loading bitmap center – System is loading center point from Bitmap
  - Loading bnd center – System is loading center point from Boundary map
  - Defining field center – System is defining center point. No defined field boundary or previous coverage
  - Loading boundaries – System is loading field boundaries
  - Operating – System is being operated.
  - Suspended (No GPS) – System does not have GPS signal
- (C) License – Indicates if there is an active Swath Control license on the display.
  - Activated – The Swath Control license is activated.
  - Not Activated – The Swath Control License is not activated.
- (D) No. of Operations - Indicates the number of operations that are Swath Control capable.
- (E) Master Turn On Time (sec) – Indicates the turn on time which is the largest among the 1-4 operation turn on times.
- (F) Master Turn Off Time (sec) – Indicates the turn off time which is the largest among the 1-4 operation turn off times.
- (G) Master Swath Control Enabled – Indicates a status of the Master Swath Control checkbox.
  - Yes – Enabled
  - No – Disabled
- (H) No. of Boundaries – Indicates the number of boundaries usable by Swath Control for the current field.
- (I) Distance from Reference Point (ft) – Indicates the distance the machine is from field reference.
- (J) Memory Usage (%) – Indicates the % of memory used.

Continued on next page


GreenStar - Diagnostic Readings
Read the latest Operator Manual prior to operation. To obtain a copy, see your dealer or visit www.StellarSupport.com.
View
Swath Control
A
Operation
Product Application
B
C Controller GreenStar Rate Controller
D Swath Control Capable Yes
E Swath Control Enabled Yes
F Operation Turn On Time (sec) 1.000
G Operation Turn Off Time (sec) 0.600
H Primary Swath Controller Yes
I No. of Sections 4
J Section Control Command*
6 6 6 6
* Section Command Legend:
0 - Off
1 - On
2 - Outside Exterior Boundary
3 - Inside Interior Boundary
4 - Over Previous Coverage
K
5 - Prescription Rate Below Minimum
6 - Speed Rate Below Minimum
7 - Undefined
2/2

PC13511 —UN—27APR11

GreenStar - Diagnostic Readings 2/2

- (A) View drop down box – Indicates the type of diagnostics information currently being viewed.
- (B) Operation Drop down box – Indicates the operation for the diagnostic information currently being viewed.
- (C) Controller – Indicates the controller responsible for selected Operation.
- (D) Swath Control Capable – Indicates if the Controller is a Swath Control Capable Controller.
- (E) Swath Control Enabled – Indicates the status of the selected Operation Swath Control checkbox.
  - Yes – Enabled
  - No – Disabled
- (F) Operation Turn on Time (sec) – Indicates the turn on time for the selected operation.
- (G) Operation Turn off Time (sec) – Indicates the turn off time for the selected operation.
- (H) Primary Swath Controller – Indicates if the selected is the primary operation.
- (I) No. of Sections – Indicates the number of sections for the selected operation.
- (J) Section Control Command – Indicates the current command for each section.
- (K) Section Command Legend – Defines the numbers in the Section Control Command Section.
  - 0 – Off
  - 1 – On
  - 2 – Outside Exterior Boundary
  - 3 – Inside Interior Boundary
  - 4– Over Previous Coverage
  - 5 – Prescription Rate Bellow Minimum
  - 6 – Speed Rate Below Minimum
  - 7 – Undefined

BA31779,0000170 -19-28APR11-2/2

Swath Control Settings Quick Sheet—Metric

Constant Ground Speed (km/h)	Physical machine reaction delay time (seconds)	Distance traveled at given speed and time (meters)	Distance traveled per GPS update (meters)
3	1	0.83	0.17
3	2	1.67	0.17
3	3	2.50	0.17
3	4	3.33	0.17
3	5	4.17	0.17
3	10	8.33	0.17
6	1	1.67	0.33
6	2	3.33	0.33
6	3	5.00	0.33
6	4	6.67	0.33
6	5	8.33	0.33
6	10	16.67	0.33
9	1	2.50	0.50
9	2	5.00	0.50
9	3	7.50	0.50
9	4	10.00	0.50
9	5	12.50	0.50
9	10	25.00	0.50
12	1	3.33	0.67
12	2	6.67	0.67
12	3	10.00	0.67
12	4	13.33	0.67
12	5	16.67	0.67
12	10	33.33	0.67
15	1	4.17	0.83
15	2	8.33	0.83
15	3	12.50	0.83
15	4	16.67	0.83
15	5	20.83	0.83
15	10	41.67	0.83
18	1	5.00	1.00
18	2	10.00	1.00
18	3	15.00	1.00
18	4	20.00	1.00
18	5	25.00	1.00
18	10	50.00	1.00
21	1	5.83	1.17
21	2	11.67	1.17
21	3	17.50	1.17
21	4	23.33	1.17
21	5	29.17	1.17
21	10	58.33	1.17
24	1	6.67	1.33
24	2	13.33	1.33
24	3	20.00	1.33
24	4	26.67	1.33
24	5	33.33	1.33
24	10	66.67	1.33
27	1	7.50	1.50

Continued on next page

Constant Ground Speed (km/h)	Physical machine reaction delay time (seconds)	Distance traveled at given speed and time (meters)	Distance traveled per GPS update (meters)
27	2	15.00	1.50
27	3	22.50	1.50
27	4	30.00	1.50
27	5	37.50	1.50
27	10	75.00	1.50
30	1	8.33	1.67
30	2	16.67	1.67
30	3	25.00	1.67
30	4	33.33	1.67
30	5	41.67	1.67
30	10	83.33	1.67

CZ76372,00002F6 -19-28APR11-2/2

Swath Control Settings Quick Sheet—SAE

Constant Ground Speed (mph)	Physical machine reaction delay time (seconds)	Distance traveled at given speed and time (feet)	Distance traveled per GPS update (inches)
2	1	2.93	7.04
2	2	5.87	7.04
2	3	8.80	7.04
2	4	11.73	7.04
2	5	14.67	7.04
2	10	29.33	7.04
4	1	5.87	14.08
4	2	11.73	14.08
4	3	17.60	14.08
4	4	23.47	14.08
4	5	29.33	14.08
4	10	58.67	14.08
6	1	8.80	21.12
6	2	17.60	21.12
6	3	26.40	21.12
6	4	35.20	21.12
6	5	44.00	21.12
6	10	88.00	21.12
8	1	11.73	28.16
8	2	23.47	28.16
8	3	35.20	28.16
8	4	46.93	28.16
8	5	58.67	28.16
8	10	117.33	28.16
10	1	14.67	35.20
10	2	29.33	35.20
10	3	44.00	35.20
10	4	58.67	35.20
10	5	73.33	35.20
10	10	146.67	35.20
12	1	17.60	42.24
12	2	35.20	42.24
12	3	52.80	42.24
12	4	70.40	42.24
12	5	88.00	42.24
12	10	176.00	42.24
14	1	20.53	49.28
14	2	41.07	49.28
14	3	61.60	49.28
14	4	82.13	49.28
14	5	102.67	49.28
14	10	205.33	49.28
16	1	23.47	56.32
16	2	46.93	56.32
16	3	70.40	56.32
16	4	93.87	56.32
16	5	117.33	56.32
16	10	234.67	56.32
18	1	26.40	63.36

Continued on next page

CZ76372,00002F7 -19-28APR11-1/2

Constant Ground Speed (mph)	Physical machine reaction delay time (seconds)	Distance traveled at given speed and time (feet)	Distance traveled per GPS update (inches)
18	2	52.80	63.36
18	3	79.20	63.36
18	4	105.60	63.36
18	5	132.00	63.36
18	10	264.00	63.36
20	1	29.33	70.40
20	2	58.67	70.40
20	3	88.00	70.40
20	4	117.33	70.40
20	5	146.67	70.40
20	10	293.33	70.40

CZ76372,00002F7 -19-28APR11-2/2

ISO Implements

Implement Detected Warning

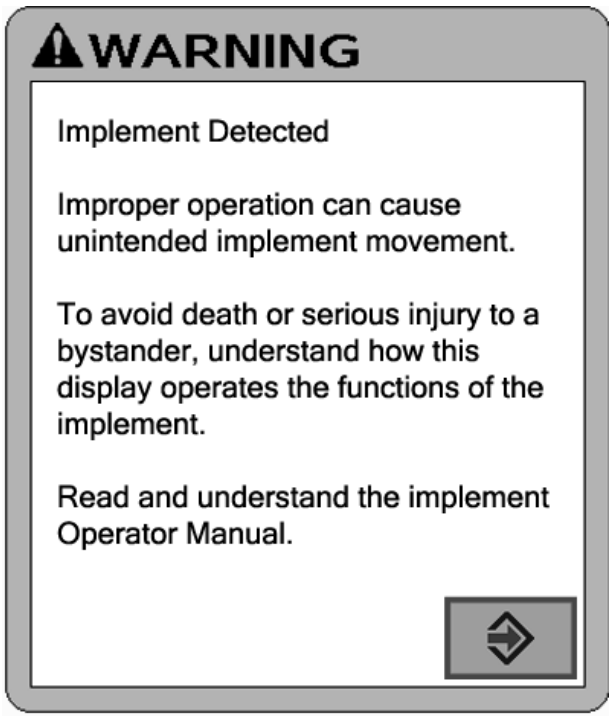
CAUTION: Implement Detected

Improper operation can cause unintended implement movement.

To avoid death or serious injury to a bystander, understand how this display operates the functions of the implement.

Read and understand the implement Operator Manual.

This message occurs when the system detects an ISOBUS implement. For more information, see READ OPERATOR MANUALS FOR ISOBUS IMPLEMENTS in the Safety section.


WARNING
Implement Detected
Improper operation can cause unintended implement movement.
To avoid death or serious injury to a bystander, understand how this display operates the functions of the implement.
Read and understand the implement Operator Manual.

PC10339 —UN—23SEP07

OUO6050,0000E6B -19-06OCT08-1/1

Operating ISO Implement

IMPORTANT: Before using display to control ISOBUS implements, read operator manual provided by implement manufacturer and observe all safety messages in manual and on implement prior to use. When used with ISOBUS implements, information and control functions placed on this display are provided by implement and are the responsibility of implement manufacturer.

OUO6050,0002316 -19-06OCT08-1/1

ISO Implements

The John Deere Display GS3 display supports ISOBUS 11783 compliant implements. These implements can be displayed and operated with this Display. A standardized connector in the back of the tractor allows the connection of such implements. ISOBUS implements may support the Aux Control functionality (See Aux Control chapter for more details).

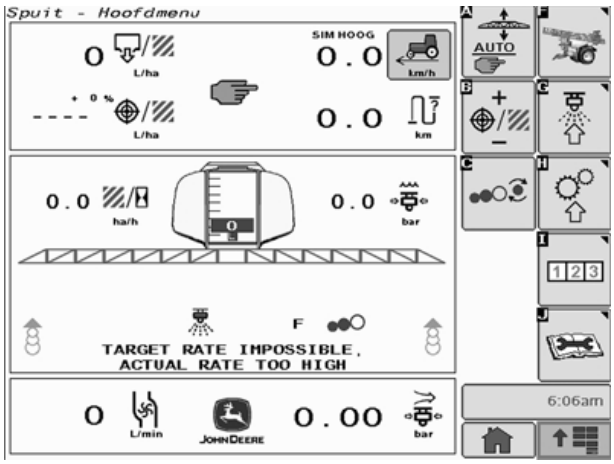


PC9744 —UN—20NOV06

Standardized Connector

CF86321,000001E -19-28APR11-1/3

The John Deere pull-type sprayer presents its information as shown. The machine layout allows the control and setup of all machine functions like tank volume, boom sections, spray rate control, etc. See specific product OM for details.



PC13245 —UN—15APR11

John Deere Pull-type Sprayer Menu

Continued on next page

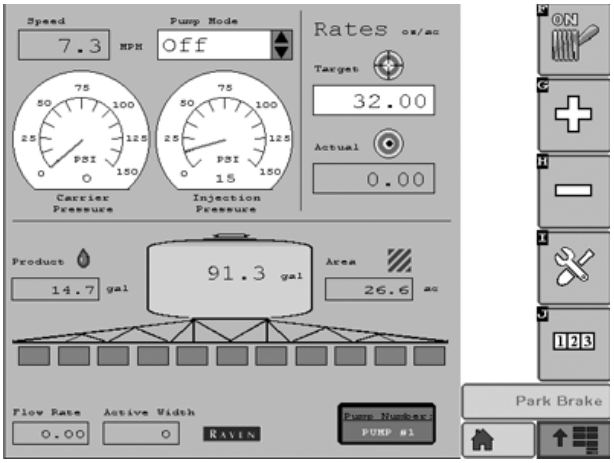
CF86321,000001E -19-28APR11-2/3

TASK CONTROLLER

Some ISOBUS compliant implements support the Task Controller based documentation. Task Controller is part of the documentation functionality built into the Display Software and supports Documentation of ISOBUS implements. The communication depends on the availability of the optional Task Controller support in the implement controller.

IMPORTANT: The current Task Controller implementation is limited to certain machines. The documentation package can only communicate with one implement at a time.

Implement width, sections, operation type, implement type, machine type, recording source, target & actual rate parameters are set automatically with Task controller based on the ISO implement



Raven Direct Injection

CF86321,000001E -19-28APR11-3/3

Softkeys

64 Softkeys (VT)

VT version 4 and later displays support exactly 64 virtual soft keys per softkey mask. The display provides a means for the operator to navigate and select all defined softkeys, depending on the controller and available functions of the ISOBUS implement. Using less than 11 softkeys there is no change. With minimum of 11 softkeys, the 64 virtual softkeys are available.

Softkey E and Softkey J

Depending on the controller and available functions of the ISOBUS implement, the user can navigate to the next/previous set of softkeys by using the arrow softkeys E and J.



Softkey Mask

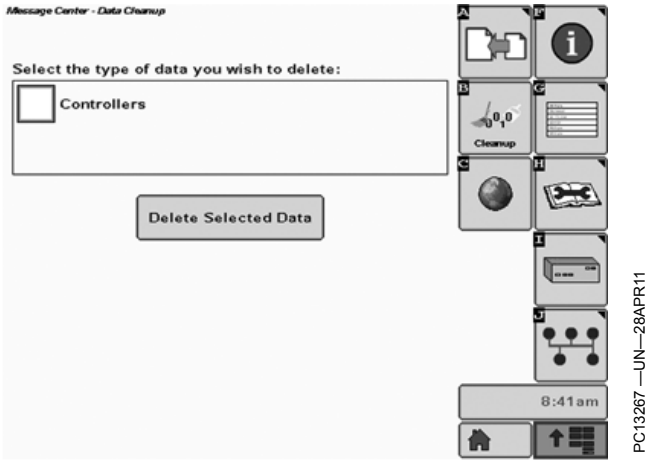
CZ76372,00002EF -19-29APR11-1/1

Remove Controllers

The delete controller function erases the object pool that is loaded on the display from the implement controller. This forces the implement controller to send its data to the display again after a restart. This is useful if there was a problem with a controller loading on the display.

Select MENU > MESSAGE CENTER > CLEANUP.

Check the box for the data to be removed and then press Delete Selected Data.



Data Cleanup

CZ76372,00002F1 -19-28APR11-1/1

Auxiliary Control Safety Signs

Auxiliary Control Detected

CAUTION: Auxiliary Control Detected

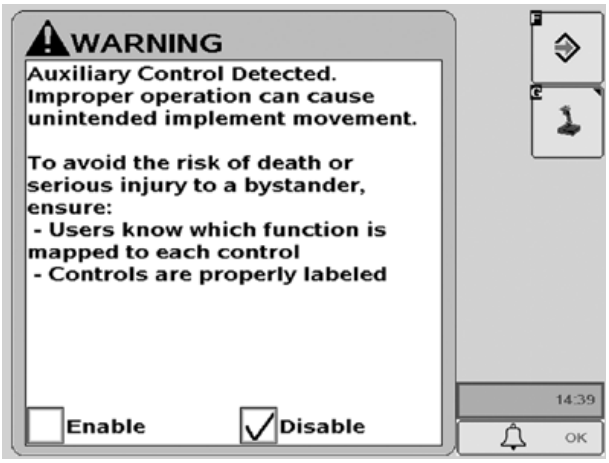
Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when the system detects an Auxiliary Control. Press ”Enter” key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the ”Mapping” key **G** to review or change the Auxiliary Control assignments.

If ”**Disable**” is selected (default), all Auxiliary Controls will be disabled.


WARNING
Auxiliary Control Detected.
Improper operation can cause unintended implement movement.
To avoid the risk of death or serious injury to a bystander, ensure:
- Users know which function is mapped to each control
- Controls are properly labeled
Enable
Disable
14:39
OK
ZX1042319 —UN—04DEC08

If ”**Enable**” is selected, all Auxiliary Controls will be enabled.

OUCC002,0002A57 -19-28OCT09-1/4

Auxiliary Control Configuration Changed

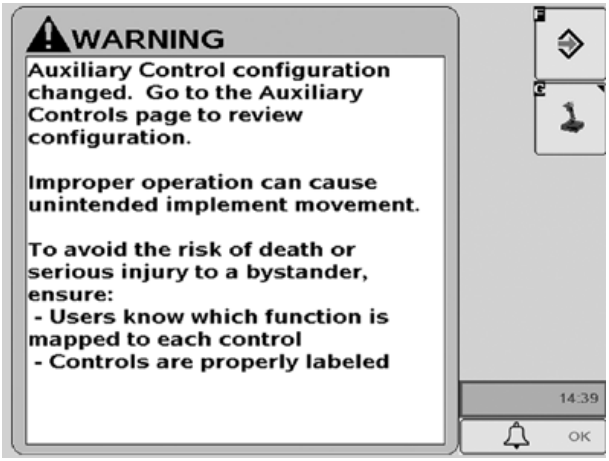
CAUTION: Auxiliary Control configuration changed. Go to the Auxiliary Controls page to review configuration.

Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when the system detects an Auxiliary Control and that configuration has been modified during run time (e.g. additional input and/or implement added). Press ”Enter” key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the


WARNING
Auxiliary Control configuration changed. Go to the Auxiliary Controls page to review configuration.
Improper operation can cause unintended implement movement.
To avoid the risk of death or serious injury to a bystander, ensure:
- Users know which function is mapped to each control
- Controls are properly labeled
14:39
OK
ZX1042512 —UN—04DEC08

”Mapping” key **G** to review or change the Auxiliary Control assignments.

Continued on next page

OUCC002,0002A57 -19-28OCT09-2/4

Auxiliary Control Enabled

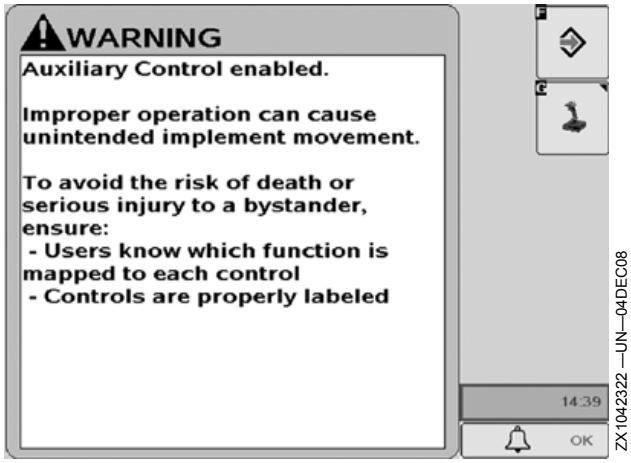
CAUTION: Auxiliary Control enabled.

Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when the operator enables the Auxiliary Control manually. Press "Enter" key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the "Mapping" key **G** to review or change the Auxiliary Control assignments.


WARNING
Auxiliary Control enabled.
Improper operation can cause unintended implement movement.
To avoid the risk of death or serious injury to a bystander, ensure:
- Users know which function is mapped to each control
- Controls are properly labeled
14:39
OK
ZX1042322 —UN—04DEC08

OUCC002,0002A57 -19-28OCT09-3/4

Auxiliary Control Enabled

CAUTION: Auxiliary Control enabled. Some requested assignments are not complete.

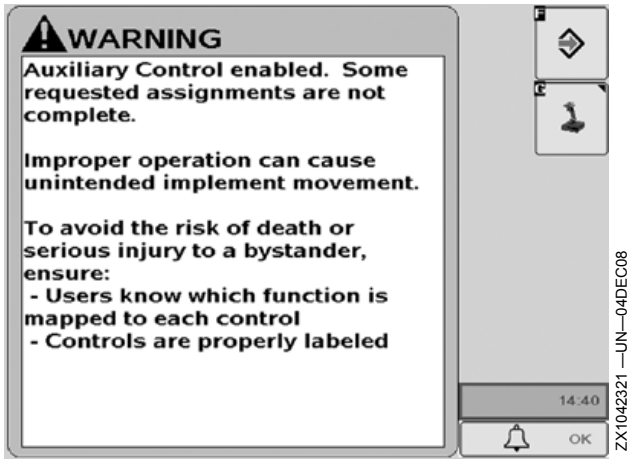
Improper operation can cause unintended implement movement.

To avoid the risk of death or serious injury to a bystander, ensure:

- **Users know which function is mapped to each control**
- **Controls are properly labeled**

This message occurs when Auxiliary Control has been enabled manually, however, not all assignments have been completed successfully. Press "Enter" key **F** to navigate to the home page. Go to the Auxiliary Controls page by pressing the "Mapping" key **G** to review or change the Auxiliary Control assignments.

IMPORTANT: If the "Enter" key F is selected, the implement only follows the assignments which have been completed successfully, however, there are still assignments which are not complete. It is necessary to review the Auxiliary Controls mapping screen by pressing the "Mapping" key G and complete all assignments before enabling Auxiliary Controls.


WARNING
Auxiliary Control enabled. Some requested assignments are not complete.
Improper operation can cause unintended implement movement.
To avoid the risk of death or serious injury to a bystander, ensure:
- Users know which function is mapped to each control
- Controls are properly labeled
14:40
OK
ZX1042321 —UN—04DEC08

OUCC002,0002A57 -19-28OCT09-4/4

Auxiliary Control Alerts

Auxiliary Control Disabled

IMPORTANT: Auxiliary Control is disabled because requested assignments could not be completed. Go to the Auxiliary Controls page to enable.

This message occurs when the system detects an Auxiliary Control and at least one of the requested assignments could not be completed. It is necessary to check the Auxiliary Controls page by pressing the ”Mapping” key **G** and review the assignments before Auxiliary Control can be enabled.


XXXX
Auxiliary Controls
Auxiliary Control Disabled
Auxiliary Control is disabled because requested assignments could not be completed. Go to the Auxiliary Controls page to enable.

PC10857RT —UN—22OCT09

CZ76372,000005D -19-09JUL10-1/5

Auxiliary Control Configuration Changed

IMPORTANT: Auxiliary Control configuration changed. Auxiliary Control is disabled because requested assignments could not be completed. Go to the Auxiliary Controls page to enable.

This message occurs when the Auxiliary Control configuration has been modified during run time (e.g. additional input and/or implement added) and at least one of the requested assignments could not be completed. It is necessary to check the Auxiliary Controls page by pressing the ”Mapping” key **G** and review the assignments before Auxiliary Controls can be enabled.


XXXX
Auxiliary Controls
Auxiliary Control Disabled
Auxiliary Control configuration changed. Auxiliary Control is disabled because requested assignments could not be completed. Go to the Auxiliary Controls page to enable.

PC10857RU —UN—22OCT09

Continued on next page

CZ76372,000005D -19-09JUL10-2/5

Auxiliary Control Not Available

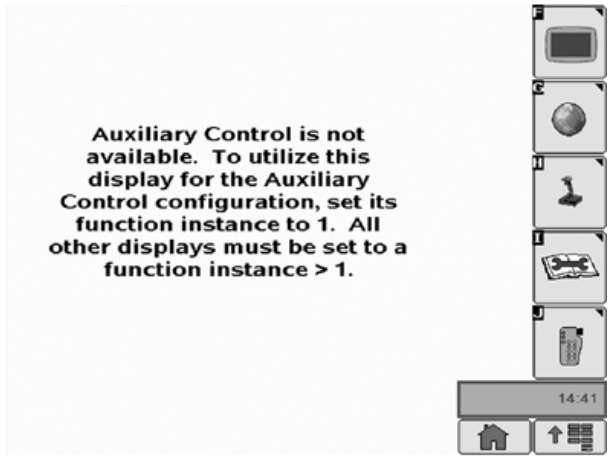
IMPORTANT: Auxiliary Control is not available. To utilize this display for the Auxiliary Control configuration, set its function instance to 1. All other displays must be set to a function instance >1.

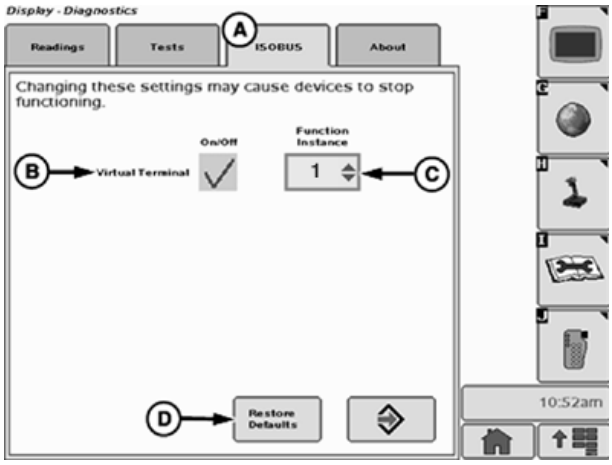
This message occurs when the system detects that the display on which the Auxiliary Control function runs is not set as the primary Virtual Terminal (Function Instance 1).

Go to MENU Softkey >> DISPLAY Softkey >> DIAGNOSTIC Softkey >> ISOBUS Tab.

To assign the GS3 Display to be the primary Virtual Terminal, set Function Instance (C) to 1.

A—ISOBUS Tab
B—Virtual Terminal Check Box
C—Function Instance Drop-Down Menu
D—Restore Defaults Key


Auxiliary Control is not available. To utilize this display for the Auxiliary Control configuration, set its function instance to 1. All other displays must be set to a function instance > 1.
14:41
ZX1042513 —UN—04DEC08

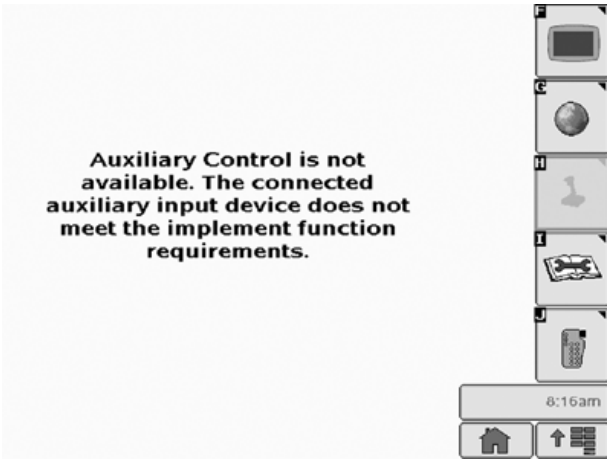


CZ76372,000005D -19-09JUL10-3/5

Auxiliary Control Not Available

IMPORTANT: Auxiliary Control is not available. The connected auxiliary input device does not meet the implement function requirements.

This message occurs if an input device cannot control any of the requested implement functions due to an incompatibility (e.g. the input sends analog signals and the implement sends digital signals).


Auxiliary Control is not available. The connected auxiliary input device does not meet the implement function requirements.
8:16am
ZX1042528 —UN—04DEC08

Continued on next page

CZ76372,000005D -19-09JUL10-4/5

Communication Error

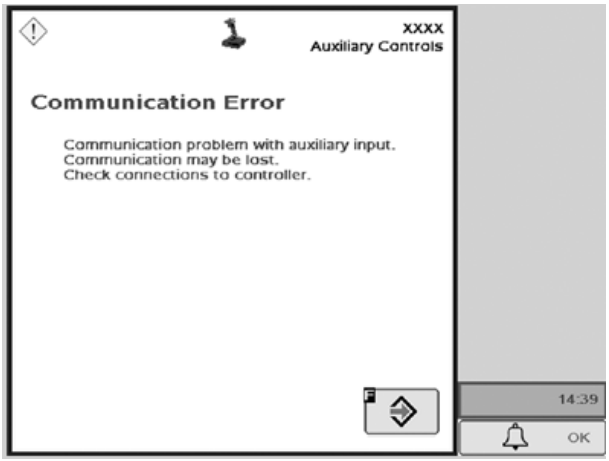
IMPORTANT: Communication Error

Communication problem with auxiliary input.

Communication may be lost.

Check connections to controller.

This message occurs when the system detects a communication problem with auxiliary input (i.e. the joystick is disconnected). Press ”Enter” key **F** to quit this error message, then check all connections.



ZX1042511 —UN—04DEC08

CZ76372,000005D -19-09JUL10-5/5

Auxiliary Controls Page

The following screens allow mapping of ISO compliant auxiliary/implement functions to ISO compliant auxiliary controls.

Example:

The display has been set up in a tractor that is attached to a sprayer.

A switch box has been installed in the tractor containing two switches: Switch 1 and Switch 2.

The sprayer has two functions that can be controlled by the switch box: turning the pump on and off, and turning the nozzles on and off.

The operator can choose which switch will turn the pump on and off and which switch will turn the nozzles on and off.

The tractor could be attached to a different implement and the switches could be assigned to control functions of that implement.

Also, a different input device, such as a joystick, could be installed and that device could be assigned control over the sprayer's functions.

PC8663 —UN—05AUG05



MENU button



ZX1042167 —UN—14OCT08

DISPLAY button

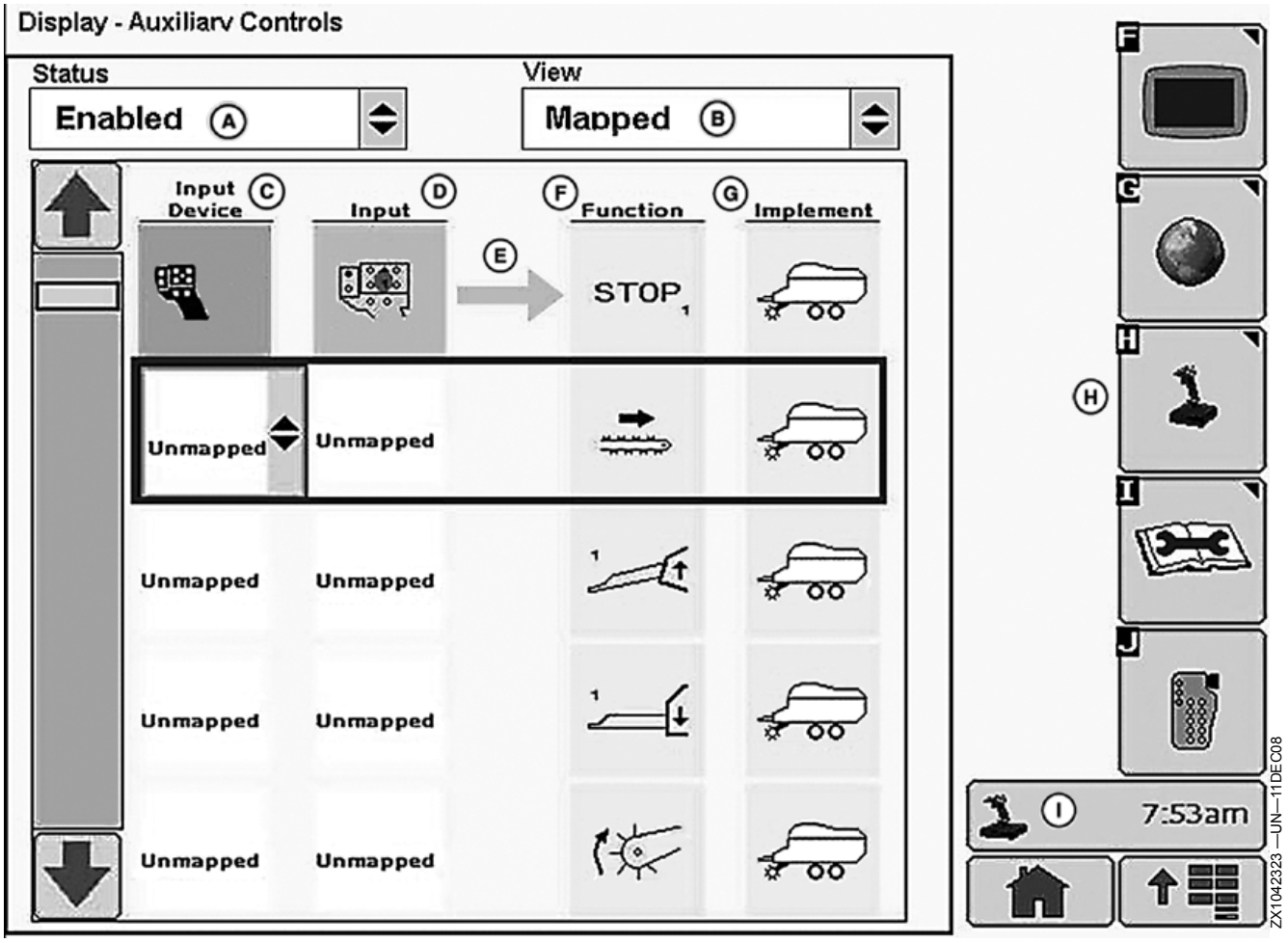


ZX1042166 —UN—14OCT08

AUXILIARY CONTROLS button

OUCC002,00029E8 -19-05DEC08-1/1

Auxiliary Controls Page—Implement Function Mapping



Auxiliary Controls

A—Status Selection
B—View Selection
C—Input Device Selection
D—Input Selection
E—Status Indicator
F—Implement Function
G—Implement Type
H—Auxiliary Controls Softkey
I— Message Center Softkey

IMPORTANT: Before using Auxiliary Controls, read the operator manual provided by the implement manufacturer and observe all safety messages in the manual and on the implement prior to use. When using Auxiliary Controls, information and control functions placed on this display are provided by the implement.

AUXILIARY CONTROLS softkey **H**

This screen allows the mapping of an ISO compliant implement functions to ISO compliant Auxiliary Input devices.

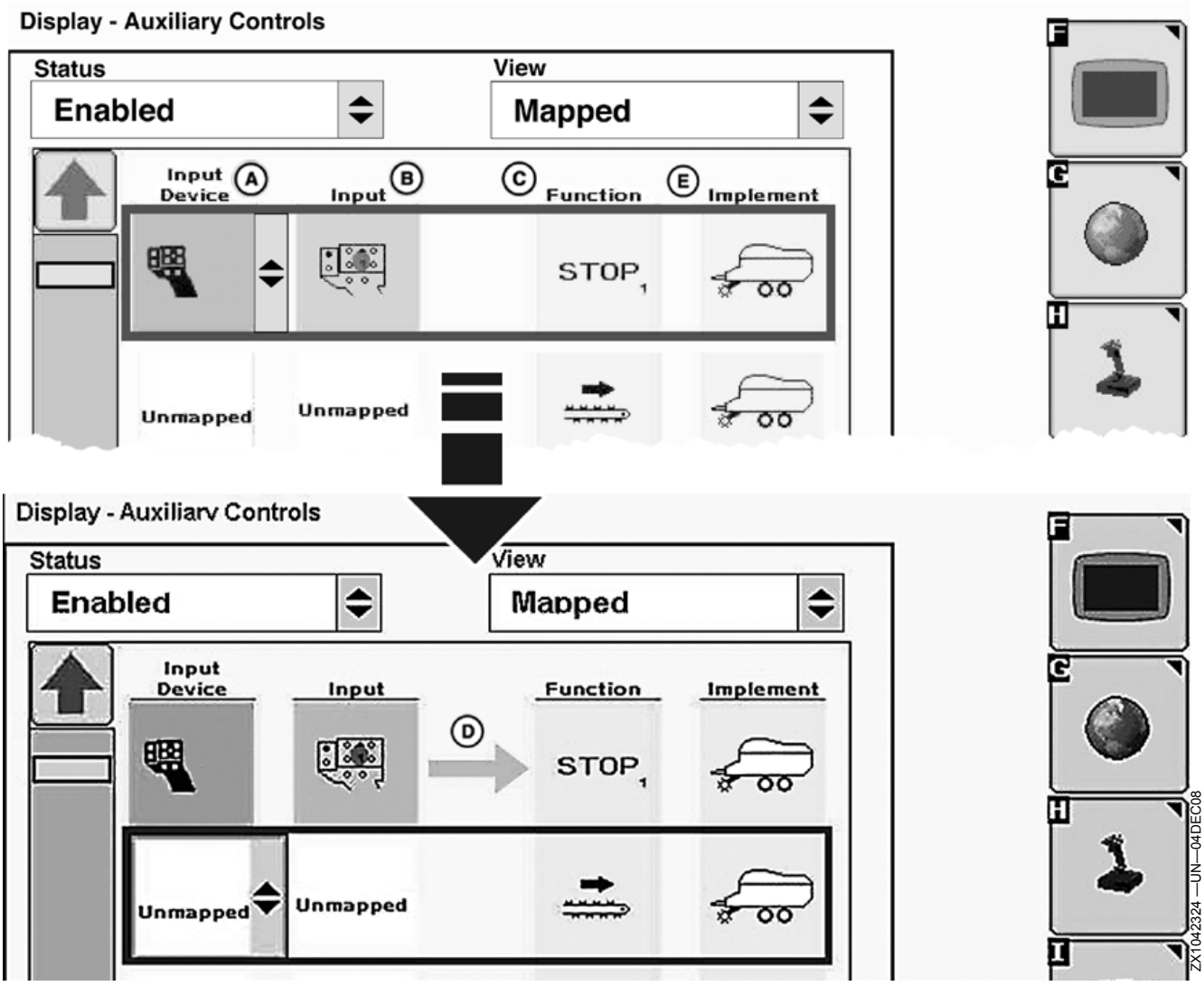
An auxiliary input device (C) consists of a number of "**Inputs**" (D). These inputs may be buttons, switches, dials, etc.

This Auxiliary Controls page allows the user to match these inputs with various implement functions. This process is called "**Mapping**" an input to a function. Once this "**Mapping**" is completed, a function (F) may be performed by activating the associated input.

The available functions (F) and inputs (D) depend on the ISO compliant implements/controls (G) that are currently connected.

Continued on next page

OUCC002,00029E9 -19-04DEC08-1/5



Auxiliary Controls

A—Input Device Selection
B—Input Selection
C—Implement Function
D—Status Indicator (green=mapped/red=un-mapped)
E—Implement Type

To assign one of an input device's input controls to one of an implement's functions perform the following steps:

1. Select an implement function (C) by using the up and down arrow buttons located on the left hand side of the screen or by pressing directly on the desired implement function (touchscreen functionality).
2. The row that contains the currently selected implement function will be indicated by a cursor colored rectangle.
3. Select the list control under the "**Input Device**" column (A) in the currently selected row.
4. Choose an "**Input Device**" (A) by selecting one of the items listed in this control.
5. Another list control will appear in the "**Input**" column (B).
6. Select an item from this list to select the specific input to map to the currently selected implement "**Function**" (C).

   Functions which are in use are grayed out, but can be selected.

IMPORTANT: The input device selection list only shows inputs which are compatible to the implement functions.

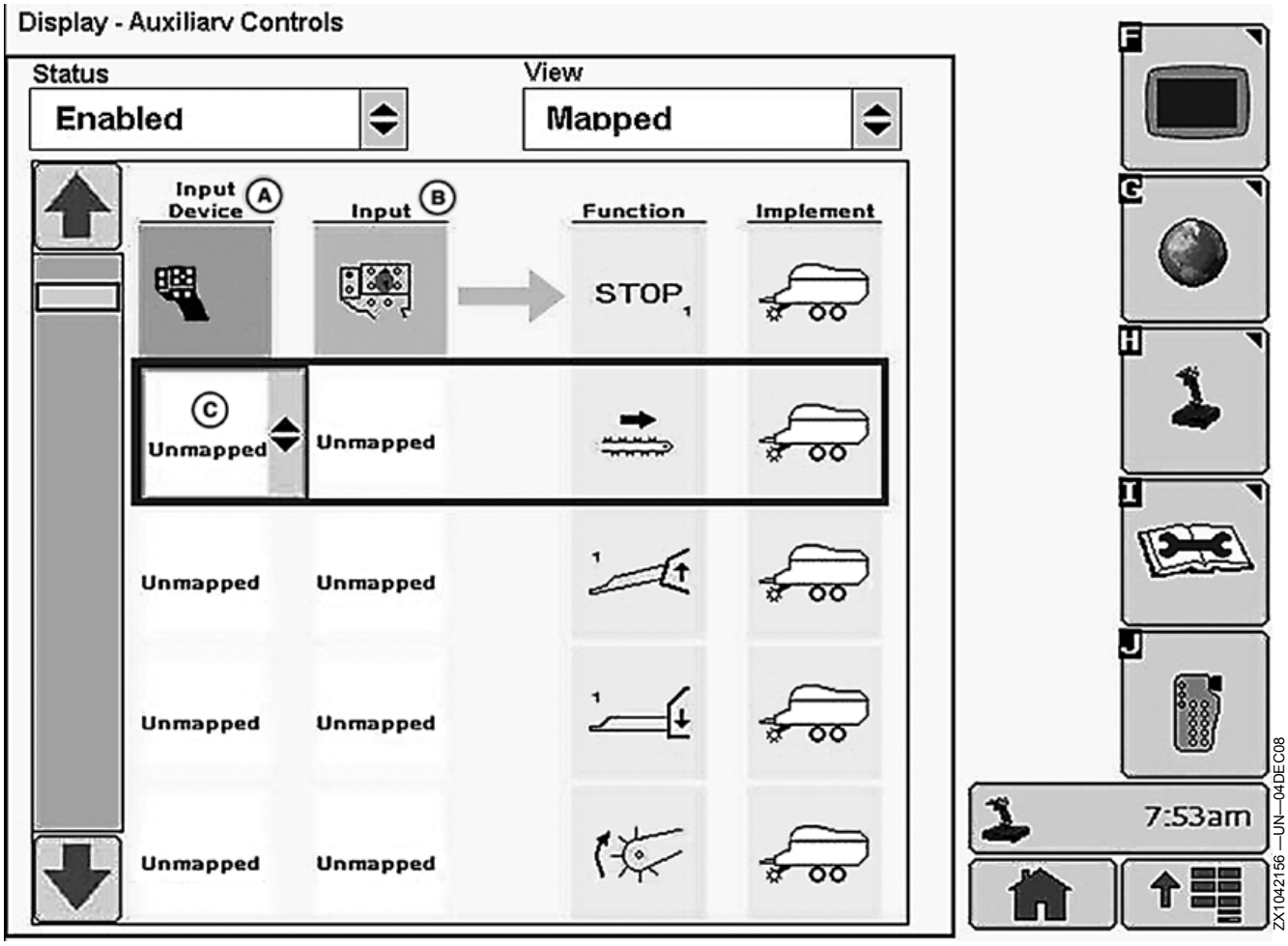
7. A status indicator (D) will appear to indicate if the input device's input (B) control was successfully mapped to the implement "**Function**" (C) or not.

Continued on next page

- A green status indicator (D) indicates that the mapping is completed successfully.
- A red status indicator (D) indicates that the mapping was not successful. In this case, check the assignments and change as necessary.

8. Repeat steps 1 to 7 to map as many controls as is needed.

OUCC002,00029E9 -19-04DEC08-3/5



Auxiliary Controls

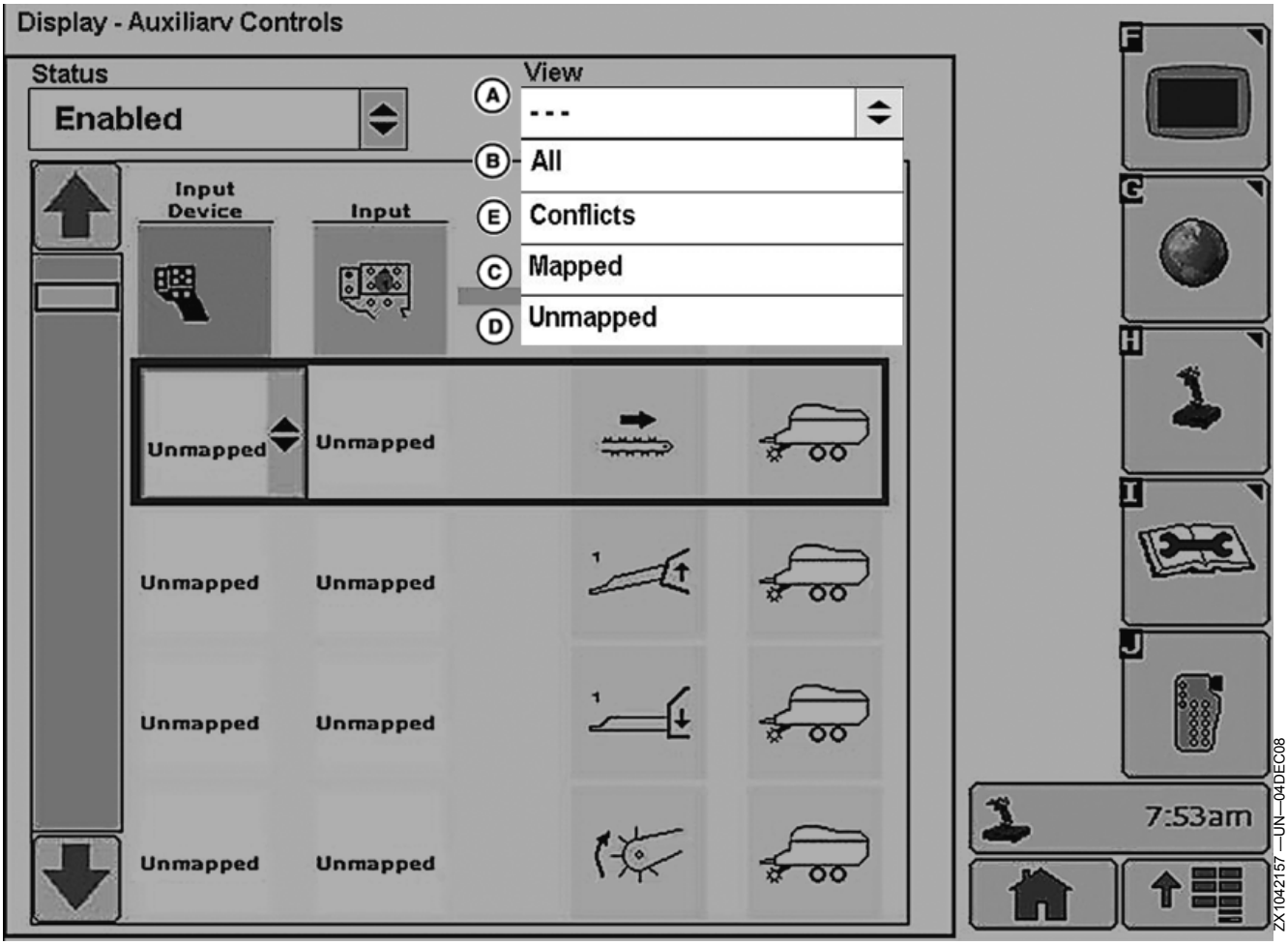
A—Input Device Selection **B—Input Selection** **C—Unmapped**

To remove an existing assignment perform the following steps:

1. Select an existing assignment by using the up and down arrow buttons located on the left hand side of the screen or by pressing directly on the desired assignment (touchscreen functionality).
2. The row that contains the currently selected assignment will be indicated by a cursor colored rectangle.
3. Select one of the list controls from the selected row. Either the "**Input Device**" (A) or "**Input**" (B) lists will suffice.
4. From the selected list, choose the "**Unmapped**" item (C).
5. The assignment arrow will be removed and the controls will be set to "**Unmapped**" (C).

Continued on next page

OUCC002,00029E9 -19-04DEC08-4/5



Auxiliary Controls

A—View Selection
B—All
C—Mapped
D—Unmapped
E—Conflicts

To filter the current list of "Mappings":

1. Select the "**View**" list control (A).
2. Choose the "**All**" item (B) to see all "**Mapped**" (C) and "**Unmapped**" (D) implement functions and "**Conflicts**" (E). This is the default selection.
3. Choose the "**Mapped**" item (C) to see only the "**Mapped**" implement functions.
4. Choose the "**Unmapped**" item (D) to see only the implement functions that have not yet been "**Mapped**" to input controls on an input device.
5. Choose the "**Conflicts**" item (E) to see only the implement function assignments in conflict to each other. See Auxiliary Controls—Conflicts and Disable Functions in this Section.

OUCC002,00029E9 -19-04DEC08-5/5

Auxiliary Controls—Assignment Error Messages

While assigning functions, some assignment error messages may appear.

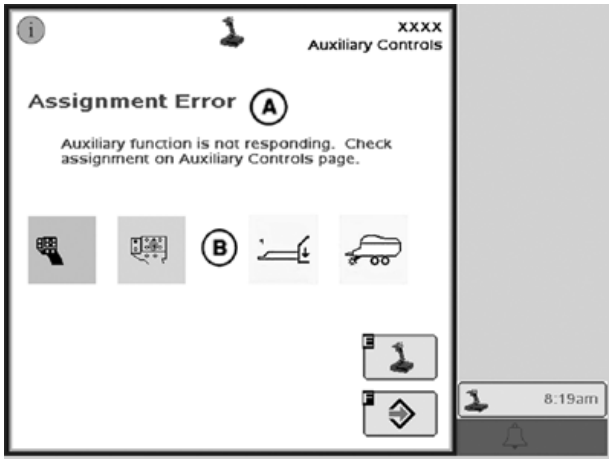
When an auxiliary function is not responding to an assignment request, the error message (A) appears:

Auxiliary function is not responding. Check assignment on Auxiliary Controls page.

The related assignment (B) is displayed. Press key **E** to reach the Auxiliary Controls page or enter key **F** to return to the previous screen.

IMPORTANT: It is recommended to press key E to reach the Auxiliary Controls page and check the auxiliary function assignment.

NOTE: The failed assignment is indicated by the missing status indicator while the input device and input are displayed.



Auxiliary Assignment—Time out

A—Assignment Error
B—Assignment
E—Auxiliary Controls Page Access Key
F—Enter Key

OUCC002,00029ED -19-04DEC08-1/4

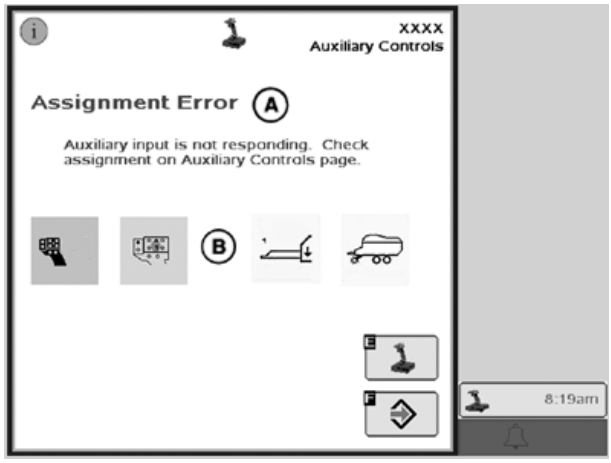
When an auxiliary input is not responding to an assignment request, the error message (A) appears:

Auxiliary input is not responding. Check assignment on Auxiliary Controls page.

The related assignment (B) is displayed. Press key **E** to reach the Auxiliary Controls page or enter key **F** to return to the previous screen.

IMPORTANT: It is recommended to press key E to reach the Auxiliary Controls page and check the auxiliary input assignment.

NOTE: The failed assignment is indicated by the missing status indicator while the input device and input are displayed.



Auxiliary Input Status Enable—Time out

A—Assignment Error
B—Assignment
E—Auxiliary Controls Page Access Key
F—Enter Key

Continued on next page

OUCC002,00029ED -19-04DEC08-2/4

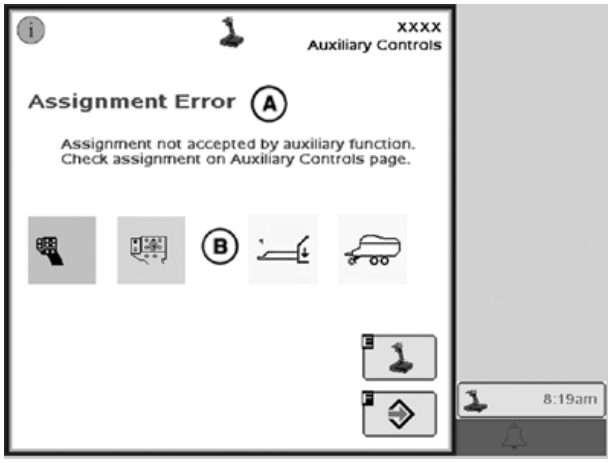
When an implement rejects an assignment, the error message (A) appears:

Assignment not accepted by auxiliary function. Check assignment on mapping screen.

The related assignment (B) is displayed. Press key **E** to reach the Auxiliary Controls page or enter key **F** to return to the previous screen.

IMPORTANT: It is recommended to press key E to reach the Auxiliary Controls page and check the auxiliary input assignment.

NOTE: The rejected assignment is indicated by the missing status indicator while the input device and input are displayed.



Auxiliary Assignment—Negative Response

A—Assignment Error
B—Assignment
E—Auxiliary Controls Page Access Key
F—Enter Key

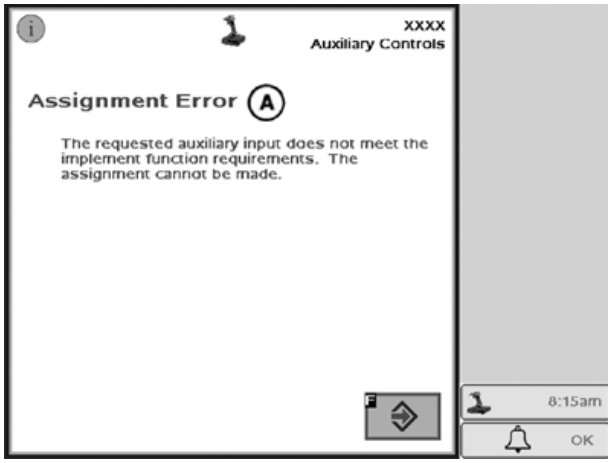
OUCC002,00029ED -19-04DEC08-3/4

When the selected auxiliary input does not match the implement functions while the learn mode is active (thus the assignment was not successful), the error message (A) appears:

The requested auxiliary input does not meet the implement function requirements. The assignment cannot be made.

Press enter key **F** to reach the Auxiliary Controls page and check the auxiliary input assignment.

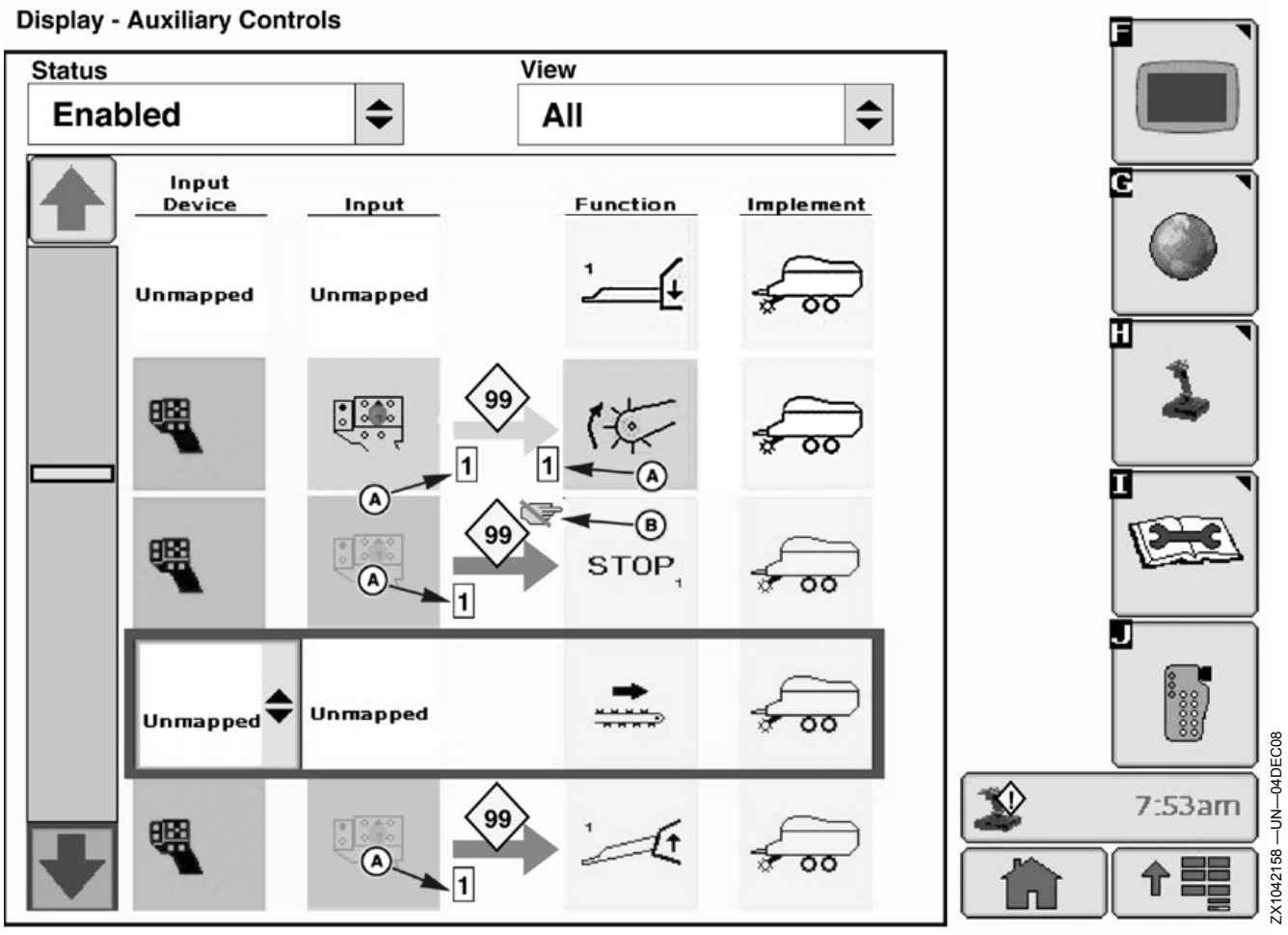
A—Assignment Error
F—Enter Key



Auxiliary Assignment—Negative Response

OUCC002,00029ED -19-04DEC08-4/4

Auxiliary Controls—Preferred Assignments



A—Single Assignment Icon **B—Assignment Lock Icon**

Auxiliary Controls allow an implement to request a preferred assignment for a specific input. The preferred assignment depends on the input device and implement configuration.

Example:

A joystick (4 inputs) and an implement (4 functions) are connected to the vehicle.

- Input 1 = function 1
- Input 2 = function 3
- Input 3 = function 2 and 4
- Input 4 = not assigned

In this example the implement **requests** function 3 to be mapped to input 2 and both functions 2 and 4 to be mapped on input 3. Input 4 remains blank.

This is called a preferred assignment and is requested by the implement as soon as implement and input device are connected. Once an assignment has been changed by the operator, the implement may store the mapping as the new preferred assignment for this particular configuration. If joystick and implement are disconnected and reconnected at a later date, the implement is able to reload the assignments again.

Based on input device and/or implement requirements the assignments may be limited:

- The single assignment icon (A) can be set by an auxiliary function and/or input.
  - If an implement function sets a single assignment icon, it can only be mapped separately to ONE button of the input device and no additional function can be assigned to this button.
  - If an input sets a single assignment icon, it can only be mapped to ONE implement function.
- The assignment lock icon (B) states that the assignment is requested automatically by the implement and cannot be set manually by the operator.

Continued on next page

CZ76372,0000294 -19-12JAN11-1/2

NOTE: Depending on the implement functions, the preferred assignment can also differ between the implement manufacturers.

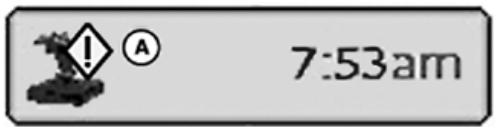
CZ76372,0000294 -19-12JAN11-2/2

Auxiliary Controls—Conflicts and Disabled Functions

Auxiliary Controls—Conflicts:

When a conflict occurs, the GS3 display shows a yellow square (A) next to the Auxiliary Control symbol in the message center button. This allows the operator to recognize conflicts at any time independently from the screen he is working on.

NOTE: The joystick icon appears only if Auxiliary Controls has been enabled.

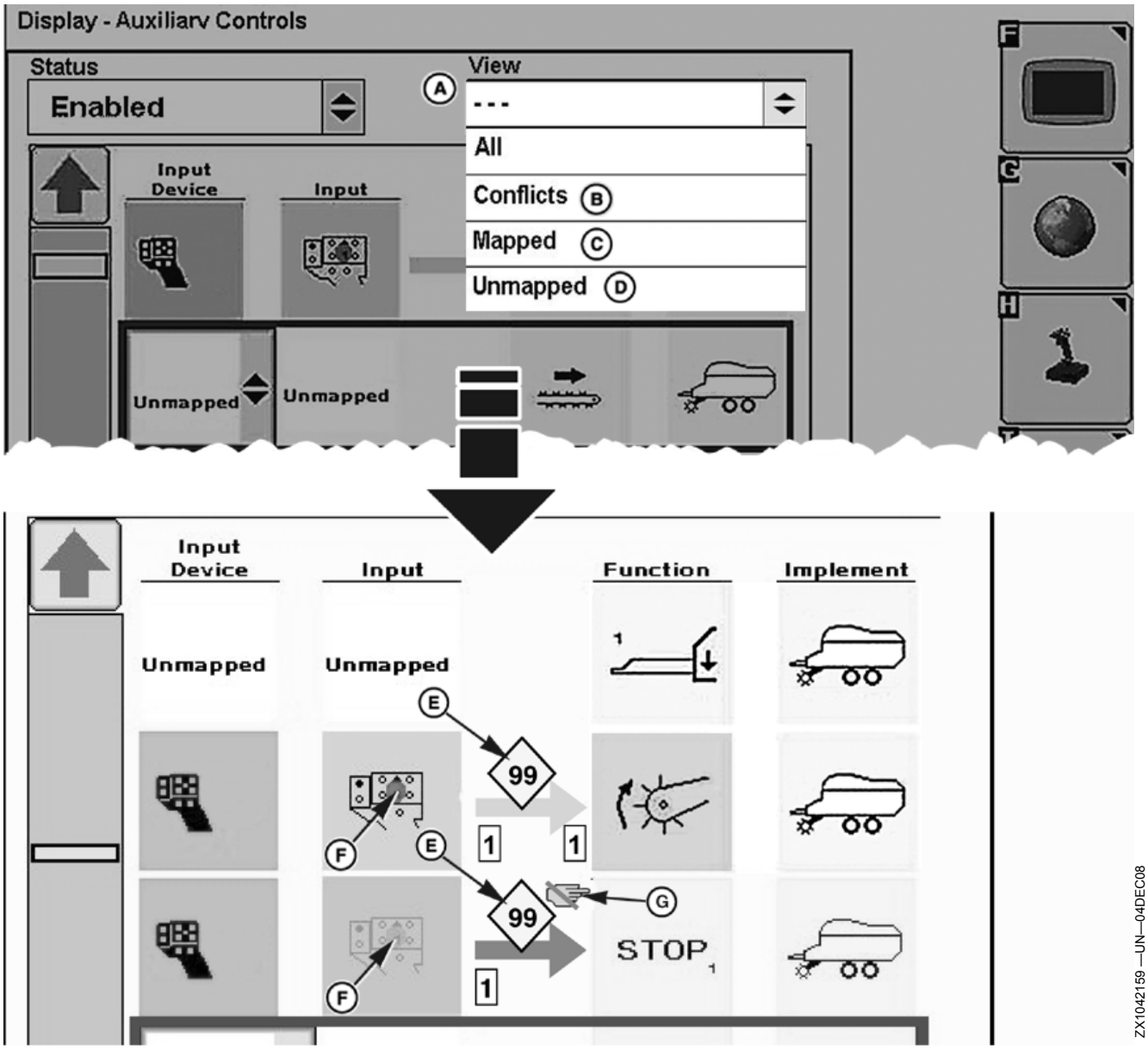


ZX1042161 —UN—14OCT08

A—Conflict Occurrence Alert

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CZ76372,0000295 -19-12JAN11-1/5



A—View Selection
B—Conflicts
C—Mapped
D—Unmapped
E—Conflict Number
F—Input
G—Assignment Lock Icon

From the Auxiliary Controls page, the operator can select the mapped (C) and unmapped (D) functions and conflicts (B) from the drop-down list of view selection (A).

All conflicts are grouped together in the conflicts filter and marked with yellow square and numbers (E). All conflicts with the same number are related to each other.

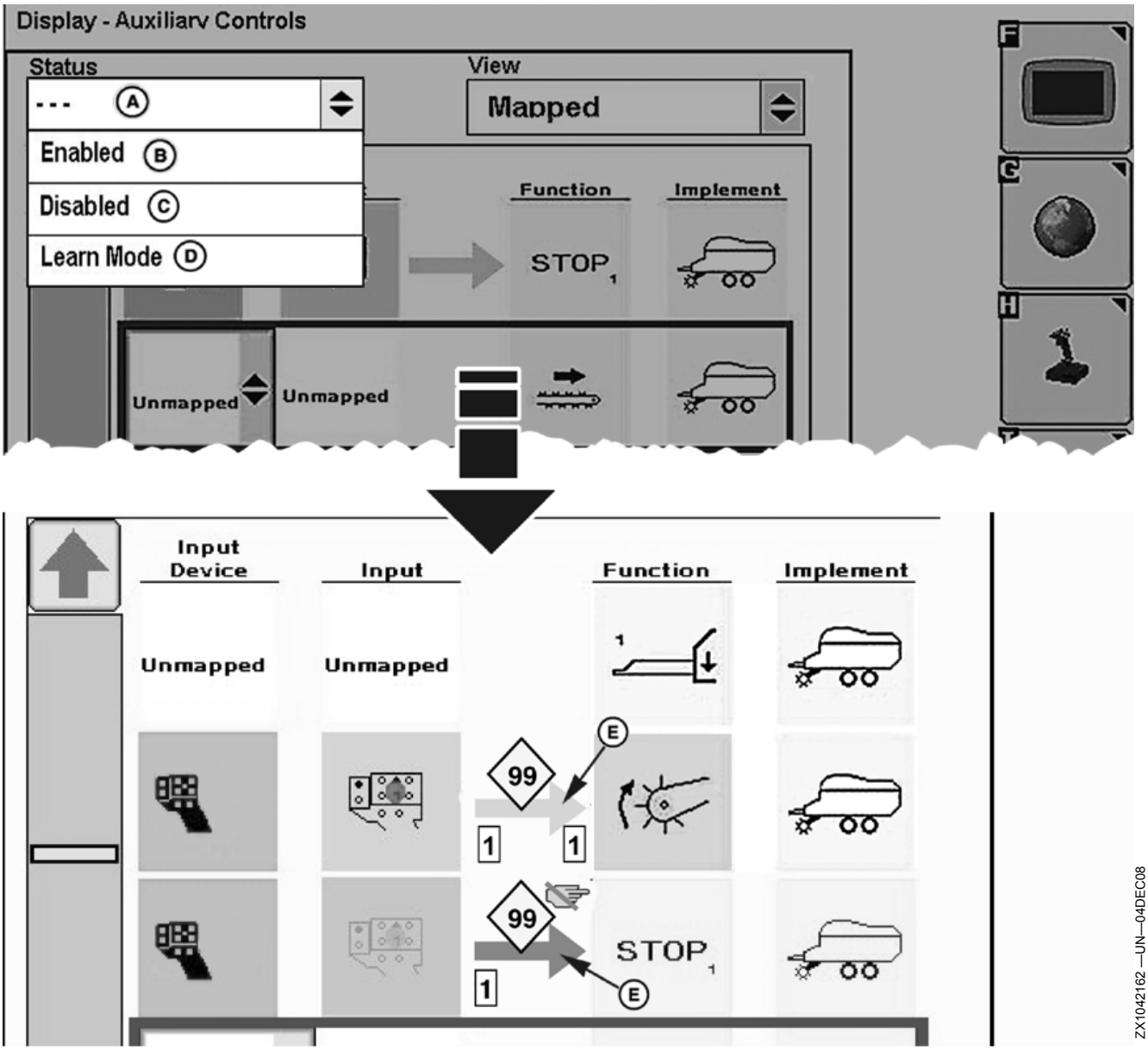
The conflict square icon (E) will appear on all related assignments even if they have been completed successfully or not.

In this example (see illustration), functions 2 and 3 have been requested to be assigned to the same input (F) although this input is set with a single assignment icon. In addition, the third function (STOP) is set with an assignment lock icon (G) and cannot be set manually.

To resolve the conflict the second function **MUST** be remapped.

Continued on next page

CZ76372,0000295 -19-12JAN11-2/5



Auxiliary Controls—Enabled Functions

A—Status Selection
B—Enabled
C—Disabled
D—Learn Mode
E—Status Indicator—Constant

Auxiliary Controls—Enabled Functions:

The status selection drop-down list (A) allows the operator to enable (B) or disable (C) the Auxiliary Control functions and to enable the learn mode (D).

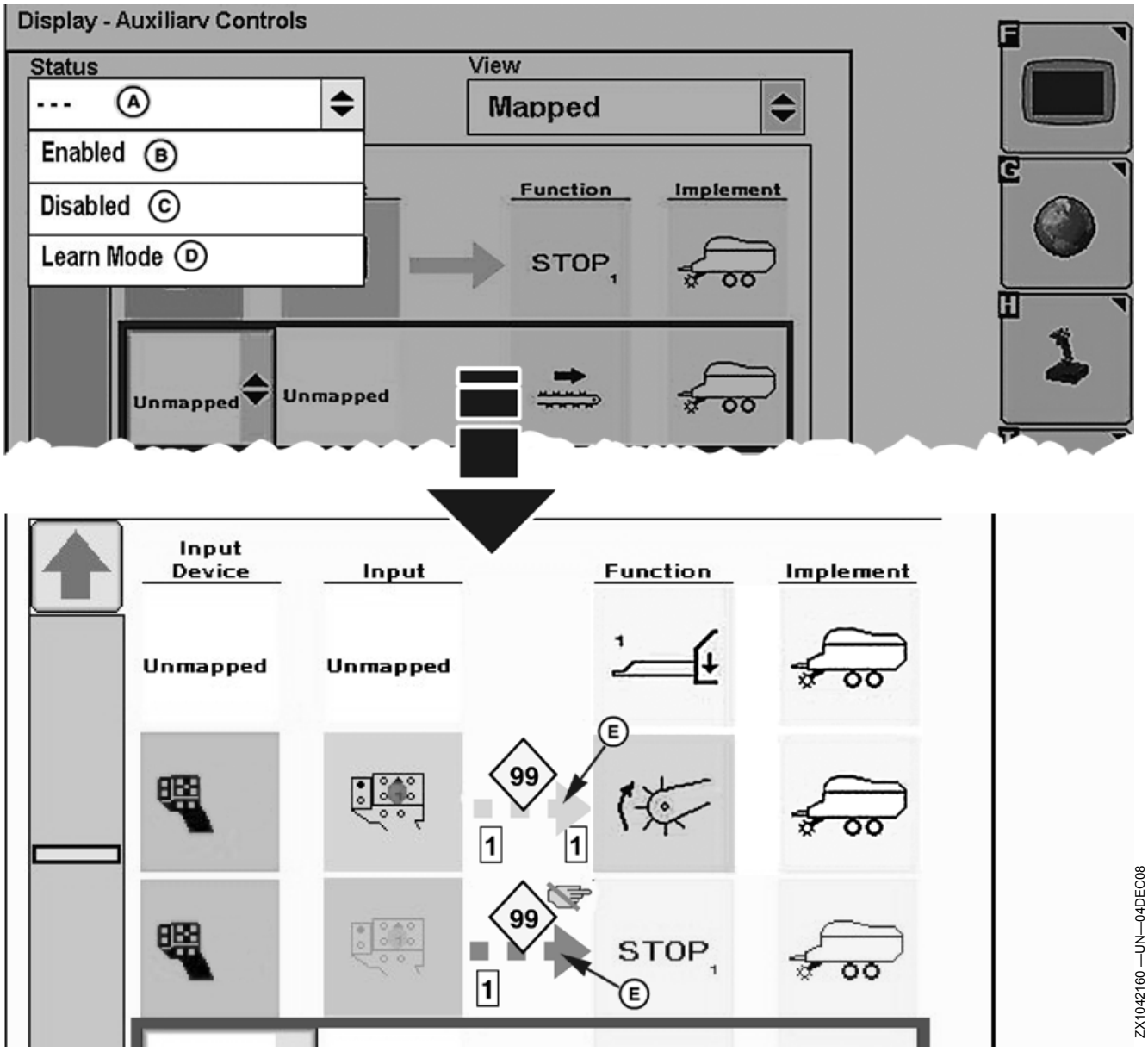
All active assignments are shown with a constant status indicator (E). In case of a conflict, the status indicator (E) switches from green to red color.

NOTE: If disabled is selected, Auxiliary Controls will be disabled and all mappings will show up with a dashed status indicator independent from if an assignment has been completed successfully or not. See Auxiliary Controls—Disabled Functions hereafter.

Selecting the ”**Learn Mode**” allows the operator to map the functions by selecting the respective input controls for the referring assignment. See Auxiliary Controls—Learn Mode hereafter.

Continued on next page

CZ76372,0000295 -19-12JAN11-3/5



Auxiliary Controls—Disabled Functions

A—Status Selection
B—Enabled
C—Disabled
D—Learn Mode
E—Status Indicator—Dashed

Auxiliary Controls—Disabled Functions:

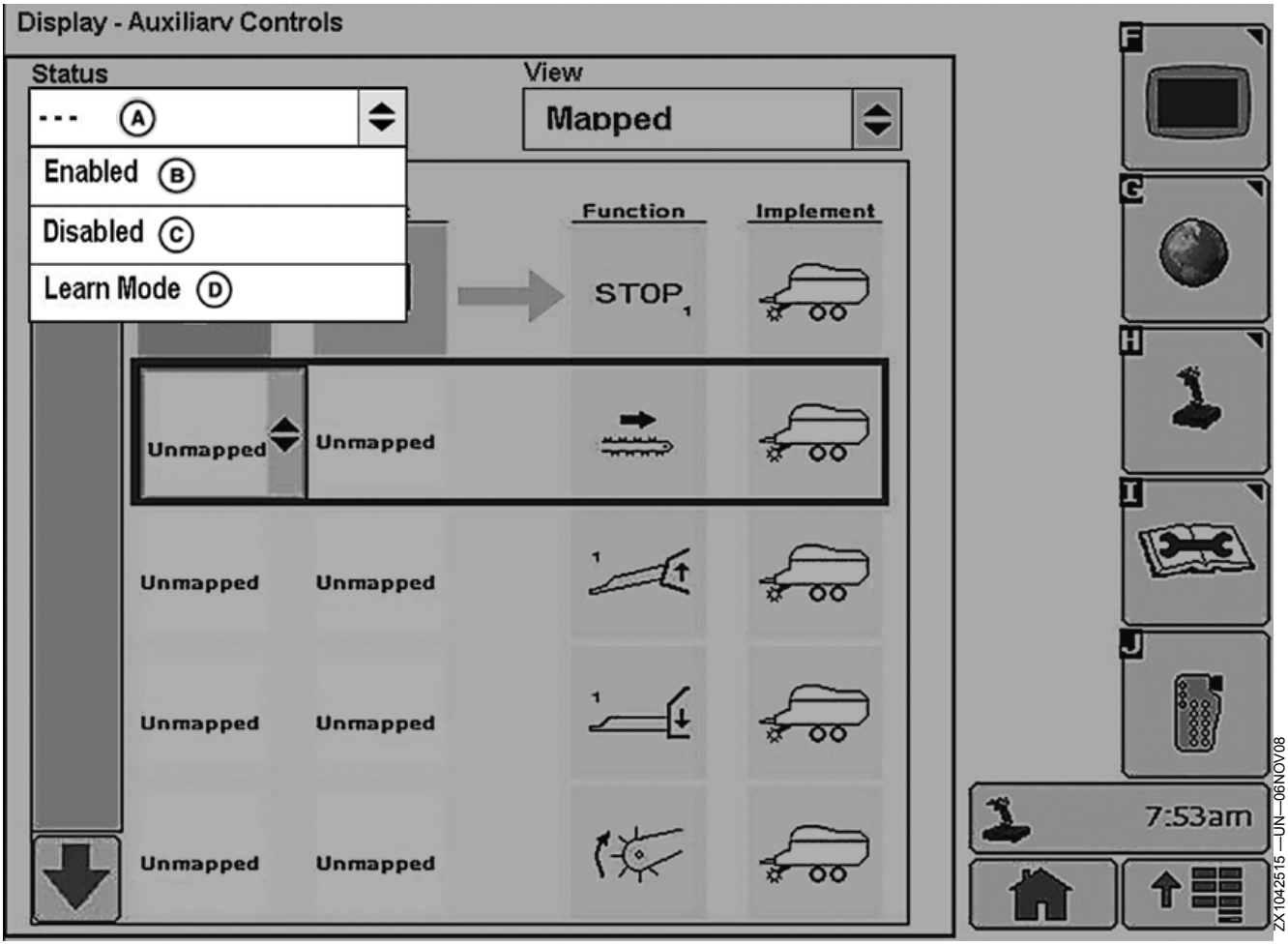
The status selection drop-down list (A) allows the operator to enable (B) or disable (C) the Auxiliary Control functions and to enable the learn mode (D).

If Auxiliary Controls is "**Disabled**" all assignments are shown with a dashed status indicator (E). In case of a conflict, the status indicator (E) switches from green to red color.

Selecting the "**Learn Mode**" allows the operator to map the functions by selecting the respective input controls for the referring assignment. See Auxiliary Controls—Learn Mode hereafter.

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CZ76372,0000295 -19-12JAN11-4/5



Auxiliary Controls—Learn Mode

A—Status Selection **B—Enabled** **C—Disabled** **D—Learn Mode**

Auxiliary Controls—Learn Mode:

The status selection drop-down list (A) allows the operator to enable (B) or disable (C) the Auxiliary Control functions and to place the system under learn mode (D).

- If the "**Learn Mode**" is selected and the operator leaves the Auxiliary Controls page without any action, the Auxiliary Controls status (enable/disable) will remain as set prior to entering the "**Learn Mode**".
- If an assignment has been completed successfully in the "**Learn Mode**", the cursor colored rectangle switches to the next possible assignment. During the assignment process, the implement **does NOT** follow any functions which have been assigned before. As long as the "**Learn Mode**" is selected, Auxiliary Controls is in a pending status (neither enabled, nor disabled).
- If Auxiliary Controls was in "**Enabled**" status before selecting the "**Learn Mode**", all additional assignments can be used as soon as they have been completed successfully. If Auxiliary Controls was in "**Disabled**" status before selecting the "**Learn Mode**", the system has to be enabled again before the new/additional assignments can be used.

Selecting the "**Learn Mode**" allows the operator to map the functions semi-automatically. Therefore it is necessary to select the implement specific function on the Auxiliary Controls page and set any input device function.

IMPORTANT: The preferred assignments which have been requested automatically by an implement with an assignment lock icon cannot be changed manually in the "Learn Mode".

CZ76372,0000295 -19-12JAN11-5/5

COM Port Assignment

Why Assign the COM Port?

The RS232 (Serial COM Port) setup is necessary to connect different control unit or components to the GS3 display.

The GS3 Display features two serial COM ports to allow connection to the following components:

- In cab printer.
- N—Sensing
- Inoculant Dosing
- Field Doc Connect
- Serial Port on GPS Receiver

Go to www.StellarSupport.com to check for other component compatibility.

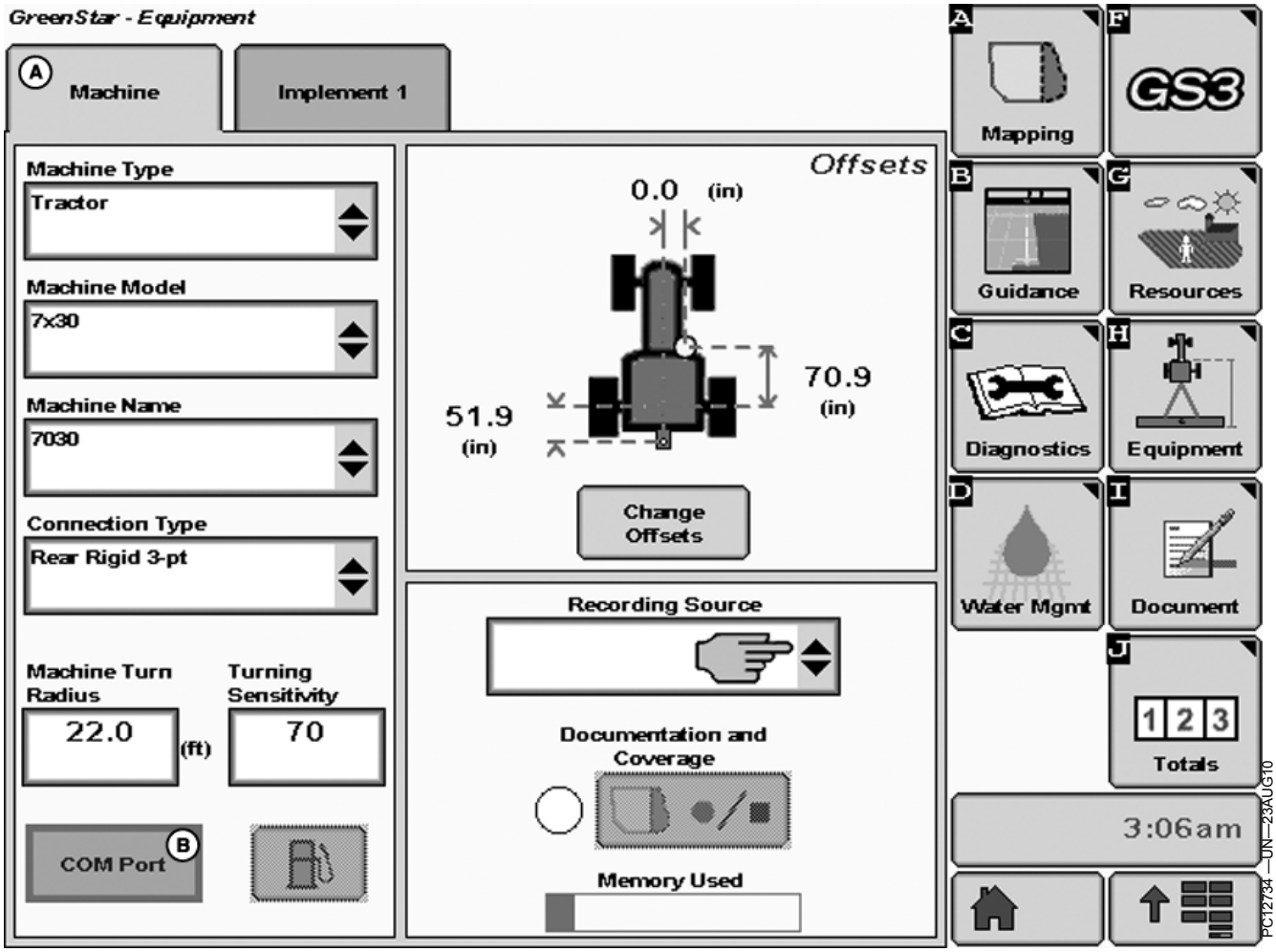
Each Com Port can be assigned to a user profile and be automatically reloaded upon machine type selection. (See Setup Com Port Section.)

IMPORTANT: Connect the component to the GS3 display before setting up a Com Port (see Setup Com Port section.)

Once this component is disconnected from the GS3 display, the relevant Com Port and Profile MUST be deactivated (see Deactivate Com Port section.)

CZ76372,0000051 -19-09JUL10-1/1

Setup COM Port



To access the COM port setup page, select MENU button > GREENSTAR 3 PRO button > EQUIPMENT softkey H > MACHINE tab (A). Select the desired Machine Type, Model, Name, and Connection Type, then press COM port button (B).

COM port settings page appears (see COM Port Settings).



ZX1043696 —UN—03DEC09

A—Machine Tab **B—COM Port Button**

CZ76372,0000145 -19-25AUG10-1/1

Com Port Settings

Use this screen to select an existing or create a profile.

Two profiles can be stored per specific machine (that is, Combine, Tractor, Forage Harvester, Sprayer, and more). When a machine is selected in the Machine-Implement Setup tab (GreenStar 3 Pro - Equipment screen), the associated profile is automatically recalled and loaded.

IMPORTANT: Connect the component to the GS3 display before setting up a profile. Once setup is finished, the system attempts to connect to the relevant component. If component is not connected, an error message (Communication Error) is then displayed.

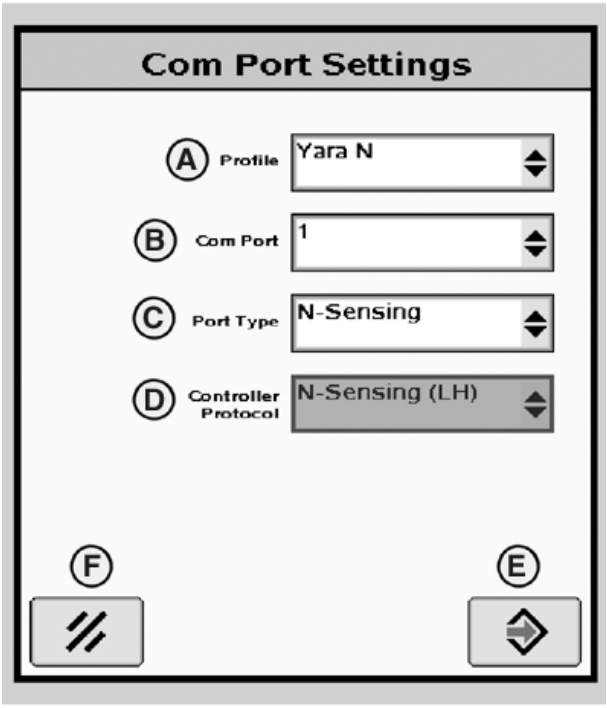
To create a profile (A) for a specific machine, proceed as follows:

1. Select NEW in the Profile (A) drop-down box then enter the desired Profile name.
2. Assign a Com Port (B) number to this Profile (1 or 2).
3. Define the Port Type (C).
   - In Cab Printer (see User Define Printer Layout section 15)
   - N-Sensing (YARA-N sensor)
   - Inoculant Dosing
   - Field Doc Connect (see Com Port Settings—3rd Party Control Units section)
   - Serial Port (that is, GPS reciever) or any other compatible components to connect.
4. Define the Controller Protocol (D), if applicable.
5. The press ENTER button to save profile or CANCEL button to cancel procedure.

All COM PORT assignments for a specific machine can be reviewed from the GreenStar 3 Pro - Diagnostic Reading page.

To review the Com Port Settings, select MENU button > GREENSTAR 3 PRO button > DIAGNOSTIC softkey C.

The Diagnostic Readings page appears (see Com Port Setting Review).



ZX1043697 —UN—03DEC09

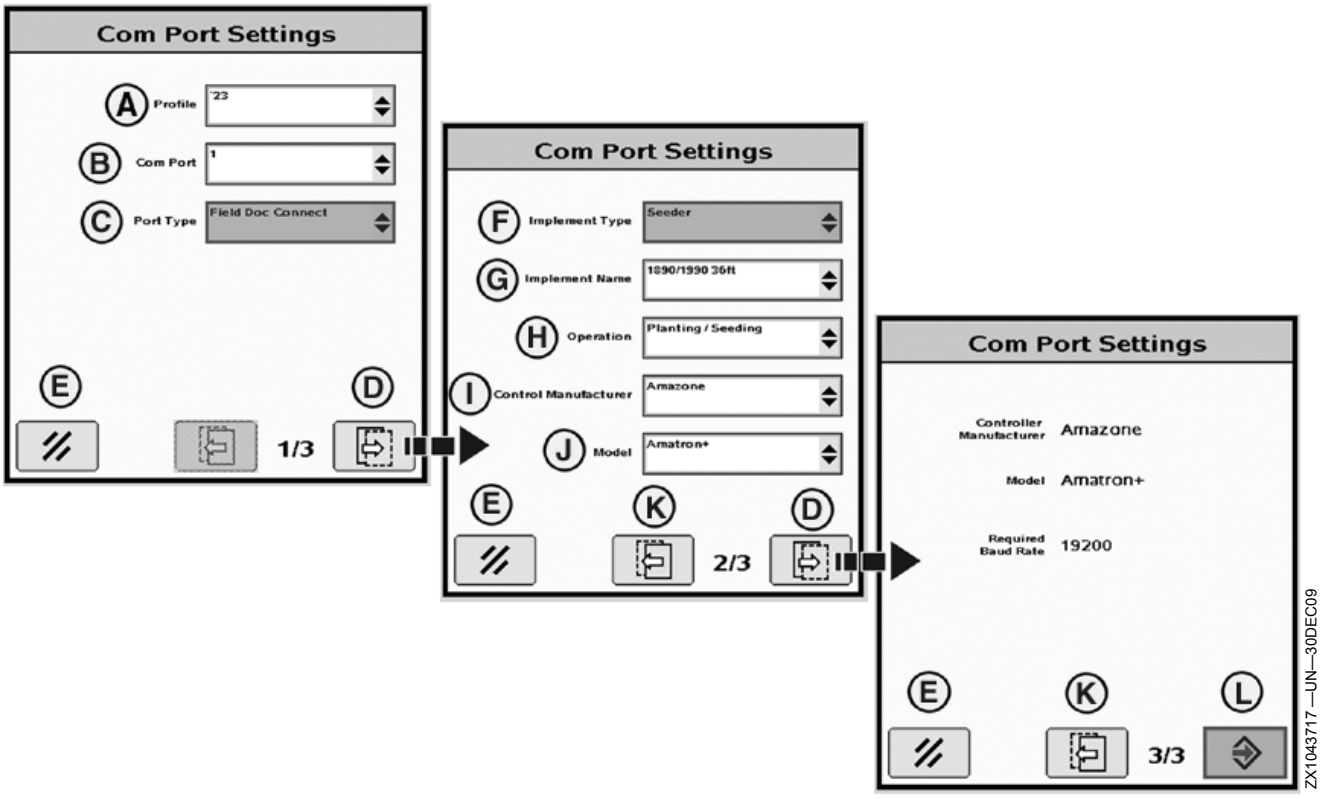


ZX1043698 —UN—03DEC09

A—Profile
B—Com Port
C—Port Type
D—Controller Protocol
E—Enter Button
F—Abort Button

CZ76372,000019C -19-29SEP10-1/1

COM Port Settings—3rd Party Control Units



A—Profile
B—Com Port
C—Port Type
D—Next Page Button
E—Abort Button
F—Implement Type
G—Implement Name
H—Operation
I— Control Manufacturer
J— Model
K—Previous Page Button
L—Enter Button

IMPORTANT: When connecting with a Rawson control unit, turn main switch to OFF before leaving vehicle or performing maintenance.

NOTE: 3rd-Party control units are control units using RS232 connection (Field Doc Connect).

NOTE: Please visit www.StellarSupport.com for list of third party compatible control units.

Data from 3rd-Party control units can be recorded directly from the following control units:

NOTE: Go to www.StellarSupport.com to find the latest information about approved platforms.

- Rawson Accu-Rate and Accu-Plant
- Dickey-John Seed Manager
- Vanguard PIC Seed Monitor
- Amazone
- LH Technologies

System will record Actual Rate, Implement Width, and GPS Recording Status (implement switch not required) directly from Field Doc Connect control unit.

NOTE: Rawson control units are also capable of accepting prescriptions from the GS3 display.

In case of a 3rd-Party control unit Com Port Assignment setup, enter the necessary information requested by the 3 steps procedure as follows:

- Select NEW in the Profile (A) drop-down box then enter the desired Profile name.
- Assign a Com Port (B) number to this Profile (1 or 2)
- Select Field Doc Connect as Port Type (C).

1. Press Next Page button (D) to go to the next step or CANCEL button (E) to stop procedure.

   - Select the Implement Type (F).
   - Select the Implement Name (G)
   - Select the associated Operation (H)
   - Select the Control Manufacturer (I)
   - Select the Model (J)

   - Press the next page button (D) to go to next step
   - Press previous page button (K) to go to the previous step
   - Press cancel button (E) to stop procedure

2. Review Com Port assignment settings then press enter button (L) to save profile or cancel button (E) to stop procedure.

Continued on next page

CZ76372,0000053 -19-09JUL10-1/2

The Com Port assignment can be reviewed from the GreenStar 3 Pro-Diagnostic Reading page.

To review the Com Port Settings, select MENU button > GREENSTAR 3 PRO button > DIAGNOSTIC softkey C.

The Diagnostic Readings page appears (see Com Port Setting Review).

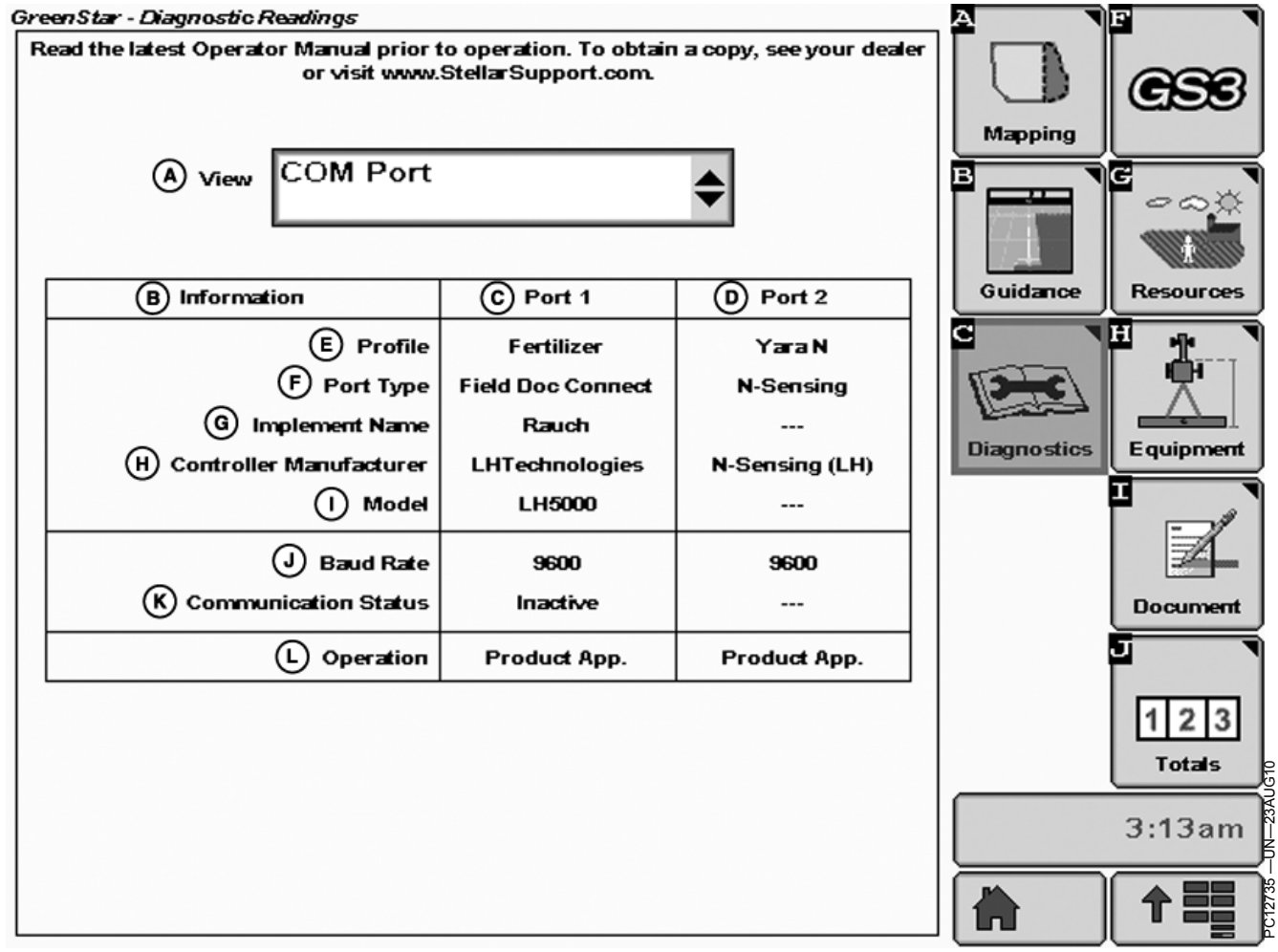


ZX1043698 —UN—03DEC09

Diagnostic Softkey

CZ76372,0000053 -19-09JUL10-2/2

COM Port Setting Review



A—View
B—Information
C—Port 1
D—Port 2
E—Profile
F—Port Type
G—Implement Name
H—Controller Protocol
I— Model
J— Baud Rate
K—Communication Status
L—Operation

When a machine is selected in the Machine-Implement Setup tab (GreenStar 3 Pro - Equipment screen), the associated profile is automatically recalled and loaded.

To display the relevant COM Port profile for a specific machine, proceed as follows:

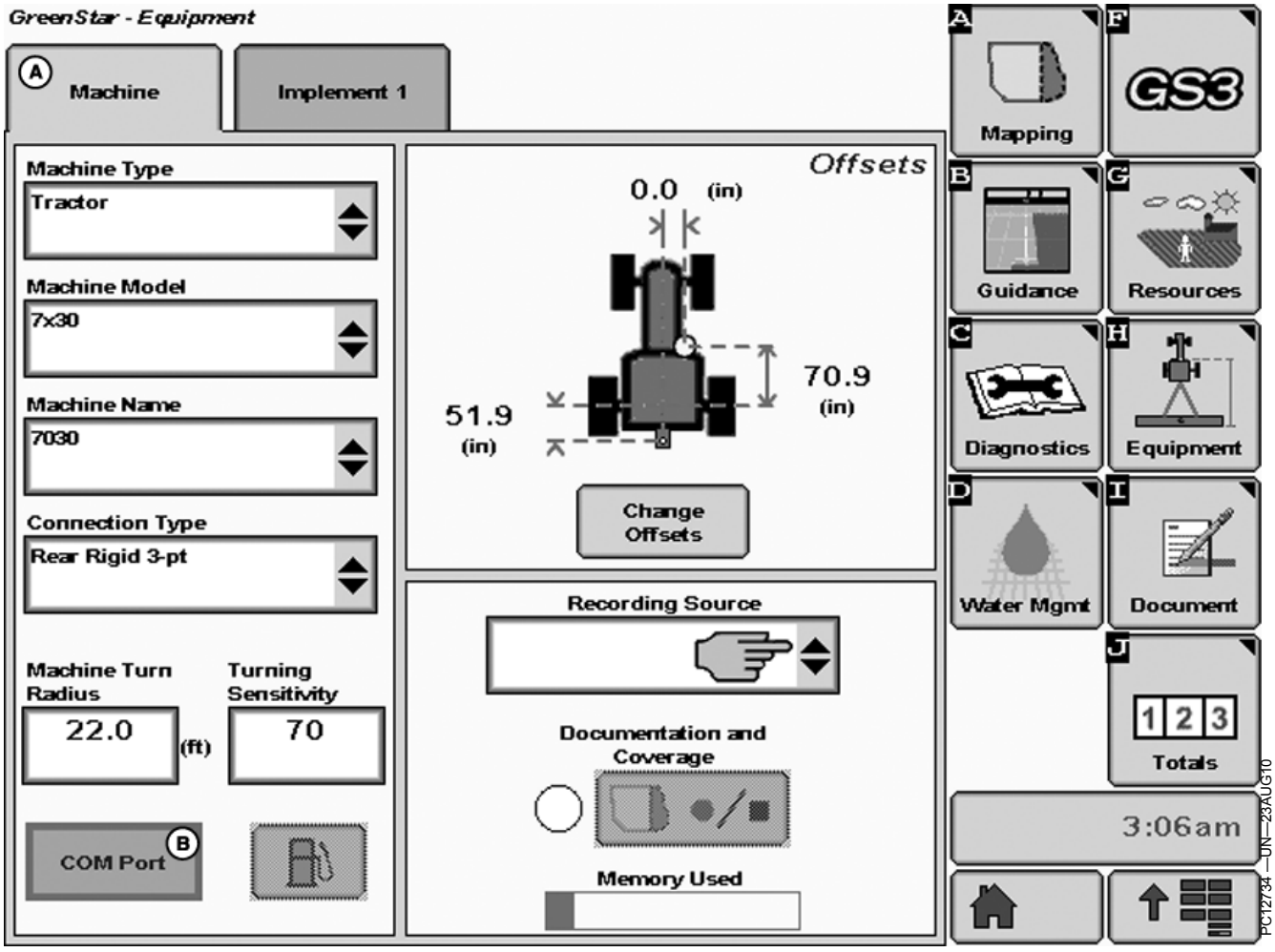
1. Select MENU button > GREENSTAR 3 PRO button > EQUIPMENT sofkey (H) > MACHINE tab then select the desired Machine type.
2. To review the Com Port Settings for this specific machine, press DIAGNOSTIC softkey (C).
3. Select COM PORT in the VIEW (A) drop-down box. The information table (B) appears and displays the Port 1 (C) and Port 2 (D) profile assignments.

The information (B) column displays a summary of:

- (E) Profile name relevant to each Com Port.
- (F) Port Type
- (G) Implement Name
- (H) Controller Protocol
- (I) Model of Control Unit
- (J) Baud Rate (transmittion speed)
- (K) Communication Status (active-inactive)
- (L) Operation Type (Product Application)

CZ76372,0000146 -19-23AUG10-1/1

Deactivate COM Port



IMPORTANT: Each time a component is disconnected from the machine, it is necessary to deactivate the relevant Profile and each associated COM Port.

On Forage Harvester or Combine equipped with an integrated printer, do not manually deactivate the printer profile.



ZX1043696 —UN—03DEC09

To deactivate a profile, access the COM port setup page. Select MENU button > GREENSTAR 3 PRO button> EQUIPMENT softkey (H) . Machine tab (A). Select the desired machine type , model name, and connection. Type then press COM Port button (B).

COM Port settings page appears (see COM Port Settings).

CZ76372,0000147 -19-25AUG10-1/1

Com Port Settings

Use tnis screen to deactivate a profile for a specific machine.

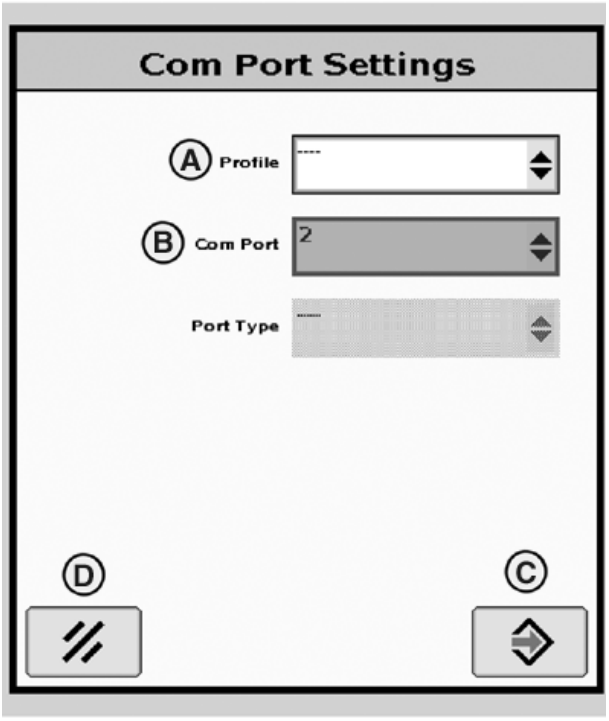
IMPORTANT: If two Com Port (B) are associated to a profile, individually deactivate each COM Port. The following procedure stands for one COM Port deactivation. Repeat procedure for each COM Port.

To deactivate a profile (A) for a specific machine, proceed as follows:

1. Select MACHINE tab then the desired Machine Type.
2. Select - - - - - in the profile (A) drop-down box.
3. Select Com Port (B) number to deactivate.
4. Then press ENTER button (C) to deactivate profile or CANCEL button (D) to cancel procedure.

The COM Port Profile is now deactivated for a specific machine. When the component is reconnected to the GS3 display, the Profile is automatically recalled and loaded.

A—Profile
B—Com Port
C—Enter button
D—Abort button



ZX1043700 —UN—03DEC09

CZ76372,0000054 -19-09JUL10-1/1

YARA N-Sensor

NOTE: **The YARA N-Sensor is for use in Europe.**

NOTE: The GreenSeeker activation enables the YARA N-Sensor module.

IMPORTANT: FieldDoc Connect Cable must be wired for COM Port 2 at the GreenStar 3 display. If no implement controller is connected to the GS3 Display, the YARA N-Sensor cannot be selected as a prescription.

1. Connect the implement controller to the GS3 Display.
2. Attach YARA N-Sensor hardware according to the YARA N-Sensor manual.
3. Connect the YARA N-Sensor display to the GreenStar RS232 cab connector.
4. Calibrate—Setup YARA N-Sensor System according to the YARA N-Sensor manual.
5. Select MENU button >> GREENSTAR 3 PRO button >> RESOURCE/CONDITIONS softkey >> RESOURCES tab
6. Fill in Client, Farm, Field, and Task information to enable documentation.

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8676 —UN—05AUG05



RESOURCE/CONDITION softkey

CZ76372,000015F -19-27SEP10-1/6

7. Select MENU button >> GREENSTAR 3 PRO button >> EQUIPMENT softkey >> MACHINE tab

   Fill in the machine information.
8. Press COM Port button.

PC8663 —UN—05AUG05



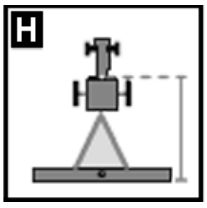
MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8677 —UN—05AUG05

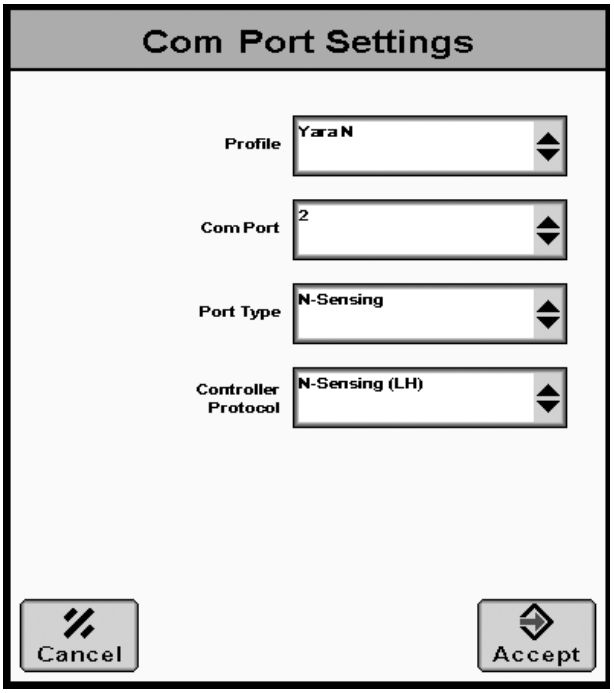


EQUIPMENT softkey

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CZ76372,000015F -19-27SEP10-2/6

9. Select NEW in Profile drop-down box then enter desired Profile name.
10. Assign Com Port to number 2.
11. Select N-Sensing in Port Type drop-down box.
12. Select N-Sensing (LH) in Controller Protocol drop-down box.
13. Then press ACCEPT button to continue.



PC12921 —UN—27SEP10

COM Port Settings

CZ76372,000015F -19-27SEP10-3/6

14. Select MENU button >> GREENSTAR 3 PRO button >> DOCUMENTATION softkey >> PRODUCT APPLICATION tab

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

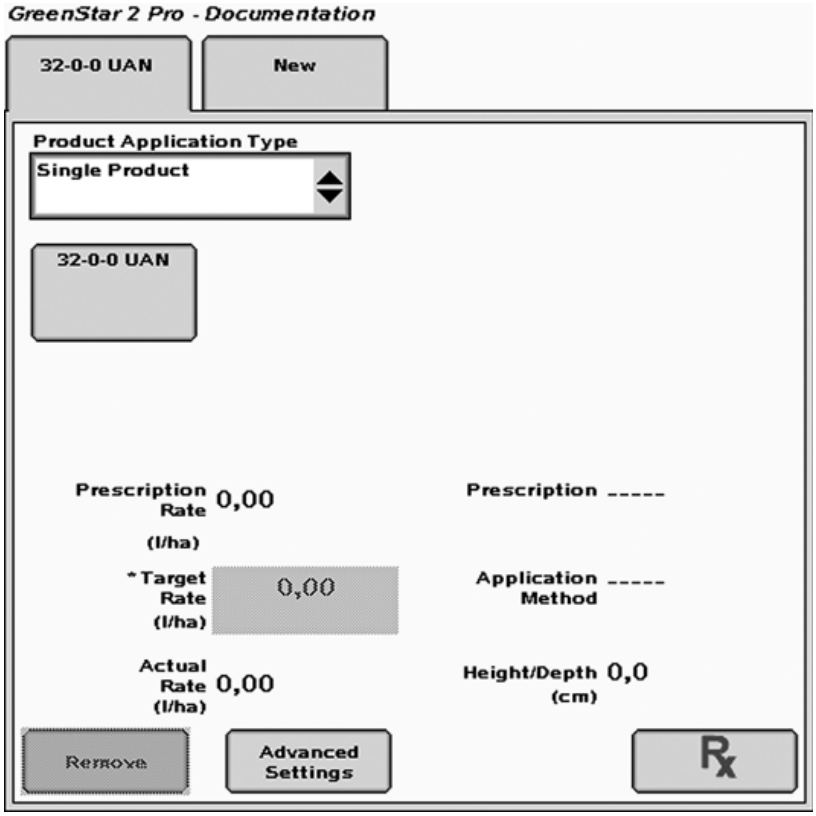
PC8678 —UN—05AUG05



DOCUMENTATION softkey

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CZ76372,000015F -19-27SEP10-4/6



PC12850 —UN—27SEP10

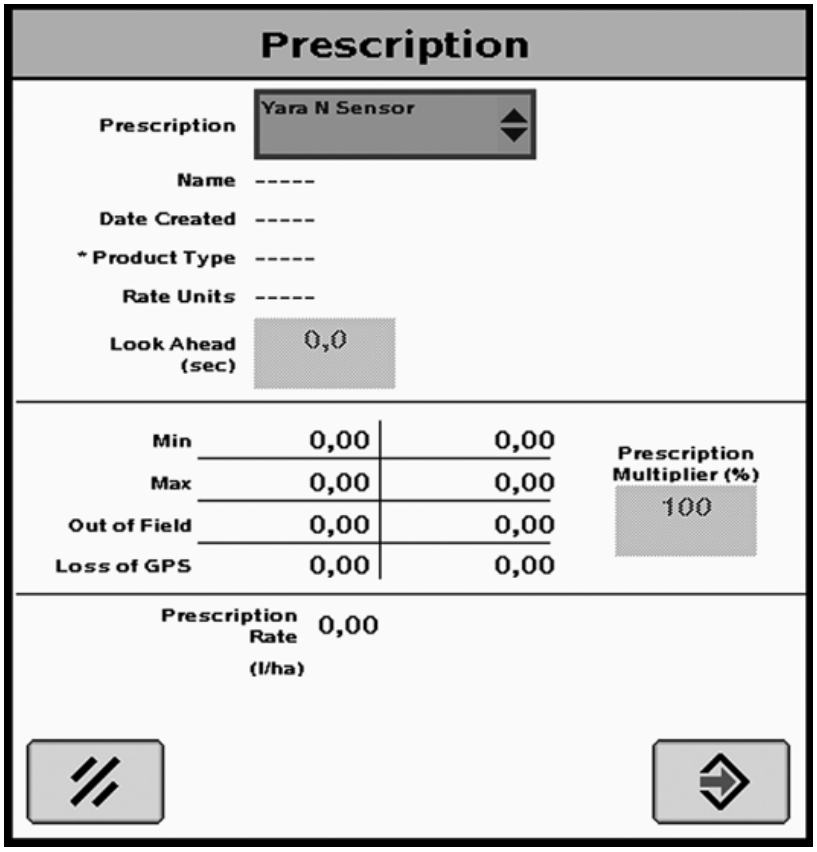
15. Select auto-generated product application tab.

NOTE: The product application tab needs to be generated manually in case of Field Doc Connect.

16. Select Rx button to indicate prescription.

Continued on next page

CZ76372,000015F -19-27SEP10-5/6



PC12922 —UN—27SEP10

Prescription

17. Select YARA N-Sensor from Prescription drop-down list.
18. Select the ENTER button to accept the prescription.
19. Setup is complete.

GreenStar 3 will read the rate provided by the YARA N-Sensor and will send it as prescription rate to the connected implement controller.

CZ76372,000015F -19-27SEP10-6/6

GPS Settings

NOTE: **GreenSeeker®is for use in North America and YARA N-Sensor is for use in Europe.**

Press: MENU button >> StarFire iTC button >> StarFire iTC softkey >> Serial Port tab

PC8663 —UN—05AUG05



MENU button

PC8659 —UN—05AUG05



StarFire iTC button

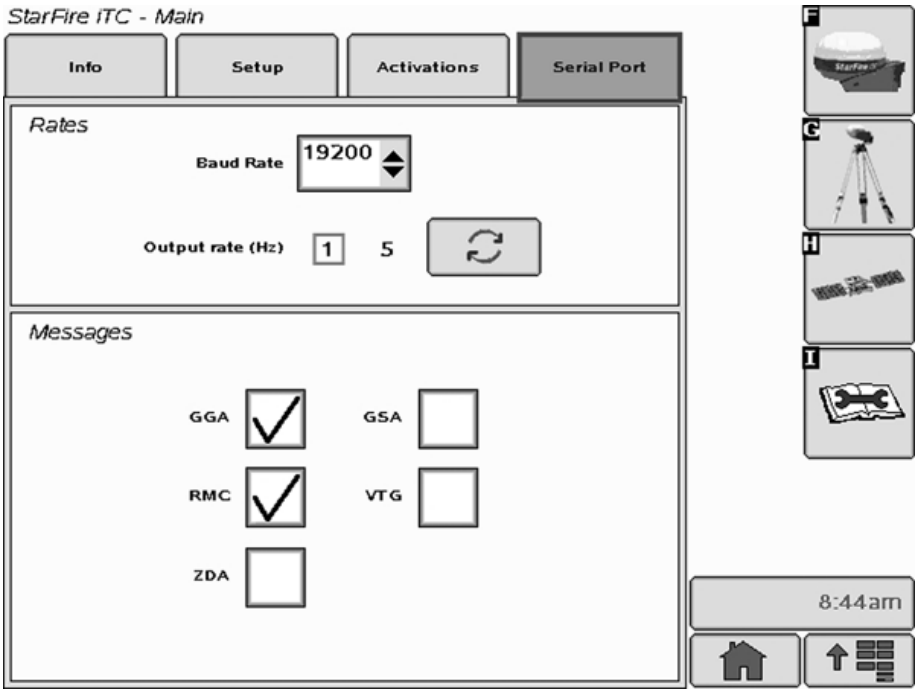
PC8680 —UN—05AUG05



StarFire iTC softkey

GreenSeeker is a trademark of NTech Industries, Inc.

CZ76372,0000185 -19-27SEP10-1/2



PC9709A —UN—25SEP07

Reference the GreenSeeker manual to check for GreenSeeker GPS settings. Set the Baud and Output rates for the StarFire iTC on the Serial Port tab page to match the GreenSeeker settings. GGA and RMC must be checked in the Messages section of the Serial Port tab page.

CZ76372,0000185 -19-27SEP10-2/2

GreenSeeker

IMPORTANT: FieldDoc Connect Cable must be wired for COM Port 2 at the GreenStar 3 display. If no implement controller is connected to the GS3 Display, GreenSeeker cannot be selected as a prescription.

1. Attach GreenSeeker hardware according to the GreenSeeker manual.
2. Connect the GreenSeeker PDA to the GreenStar RS-232 cab connector.
3. Calibrate the John Deere spray system according to the spray system's manual.
4. Calibrate GreenSeeker System according to the GreenSeeker manual. (Calibration may not be needed).
5. Set Master Spray Switch (in cab) to AUX to enable SprayStar to accept the prescription.
6. Select MENU button >> GREENSTAR 3 PRO button >> RESOURCE/CONDITIONS softkey >> RESOURCES tab
7. Fill in Client, Farm, Field, and Task information to enable documentation.

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8676 —UN—05AUG05



RESOURCE/CONDITION softkey

CZ76372,0000143 -19-27SEP10-1/6

8. Select MENU button >> GREENSTAR 3 PRO button >> EQUIPMENT softkey >> MACHINE tab

   Fill in machine information.
9. Press COM Port button.

PC8663 —UN—05AUG05



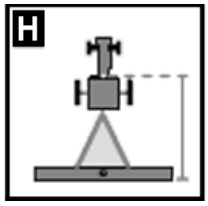
MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8677 —UN—05AUG05

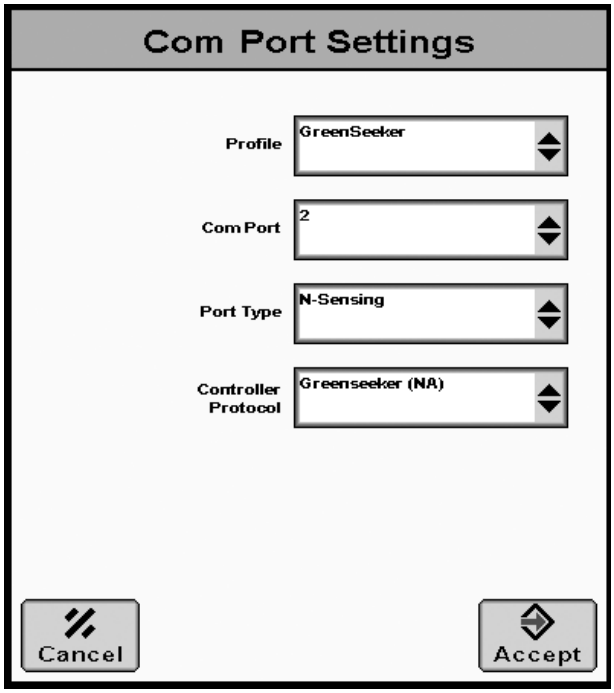


EQUIPMENT softkey

Continued on next page

CZ76372,0000143 -19-27SEP10-2/6

10. Select NEW in Profile drop-down box then enter desired Profile name.
11. Assign Com Port to number 2.
12. Select N-Sensing in Port Type drop-down box.
13. Select Greenseeker (NA) in Controller Protocol drop-down box.
14. Then press ACCEPT button to continue.



PC12920 —UN—27SEP10

COM Port Settings

CZ76372,0000143 -19-27SEP10-3/6

15. Select MENU button >> GREENSTAR 3 PRO button >> DOCUMENTATION softkey >> PRODUCT APPLICATION tab

PC8663 —UN—05AUG05



MENU button

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

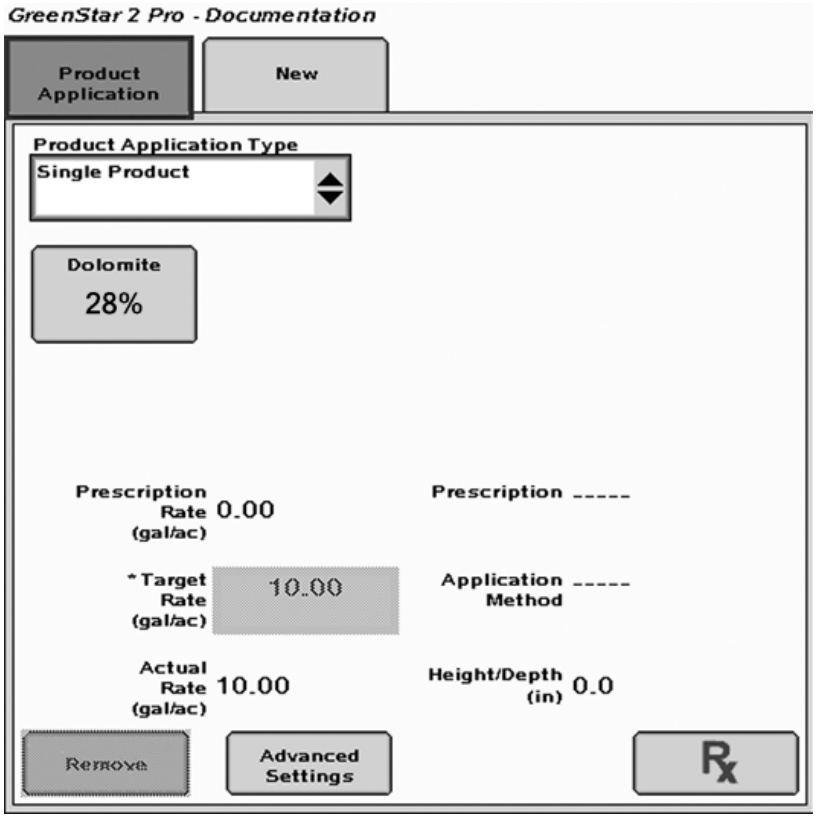
PC8678 —UN—05AUG05



DOCUMENTATION softkey

Continued on next page

CZ76372,0000143 -19-27SEP10-4/6



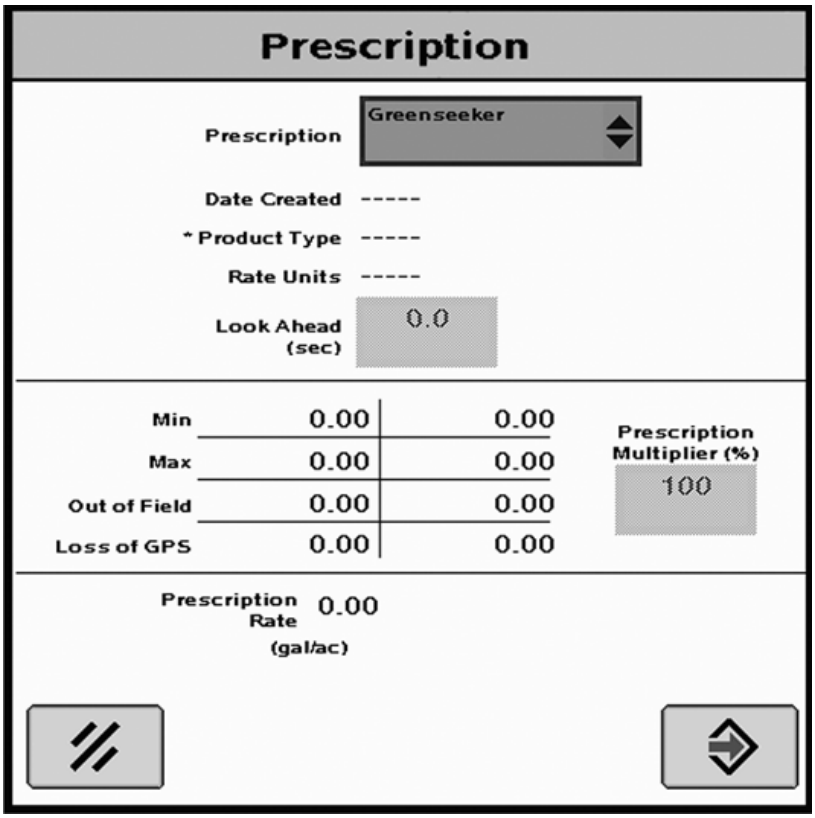
PC12848 —UN—27SEP10

16. Select auto-generated product application tab.

17. Select Rx button to indicate prescription.

Continued on next page

CZ76372,0000143 -19-27SEP10-5/6



PC12919 —UN—27SEP10

Prescription

18. Select GreenSeeker from Prescription drop-down list.
19. Select the ENTER button to accept the prescription.
20. Setup is complete.

The GS3 is now ready to receive target rates from GreenSeeker.

CZ76372,0000143 -19-27SEP10-6/6

Central Insecticide System

Select: MENU >> GREENSTAR 3 PRO >> EQUIPMENT

Make sure that the Machine Type is set to Tractor. Then press the COM Port button.

PC8663 —UN—05AUG05



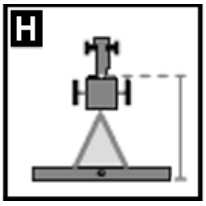
MENU Softkey

PC12685 —UN—14JUL10



GREENSTAR 3 PRO button

PC8677 —UN—05AUG05

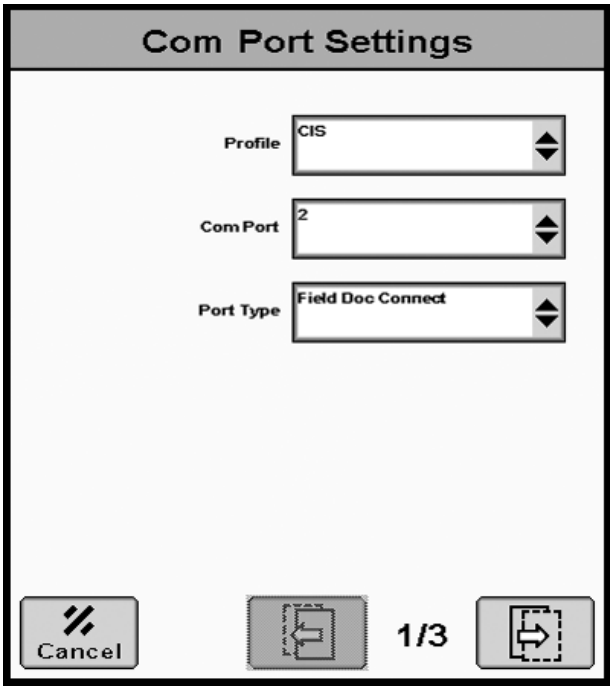


EQUIPMENT softkey

CZ76372,000015E -19-27SEP10-1/6

IMPORTANT: Connect the CIS controller to the GS3 display before setting up a profile. Once setup is finished, the system attempts to connect to the controller. If controller is not connected, an error message (Communication Error) is then displayed.

1. Select NEW in the Profile drop-down box then enter the desired Profile name.
2. Assign the appropriate Com Port number to this Profile (1 or 2).
3. Select Field Doc Connect in the Port Type drop-down box.
4. Then press NEXT PAGE button to continue.



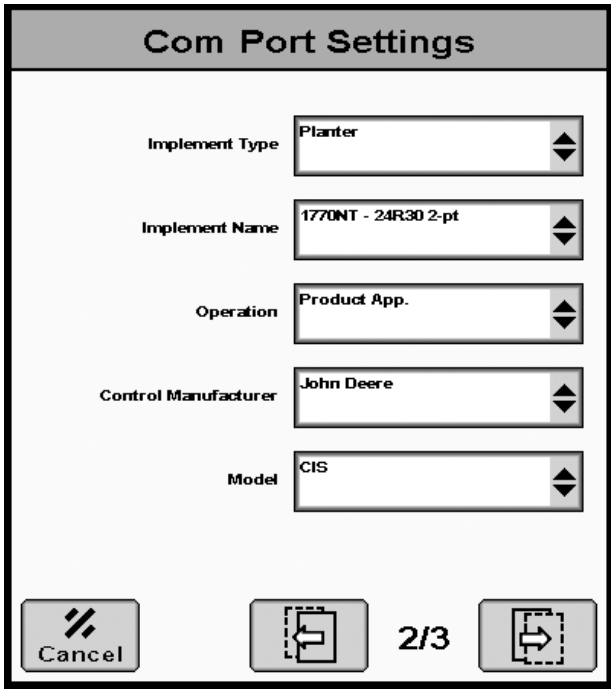
PC12915 —UN—27SEP10

COM Port Settings Page 1

Continued on next page

CZ76372,000015E -19-27SEP10-2/6

1. Select the Implement Type and Implement Name from the drop-downs.
2. Select Product App in the Operation drop-down.
3. Select John Deere in the Control Manufacturer drop-down.
4. Select CIS in the Model drop-down.
5. Press the NEXT PAGE button to go to next step.

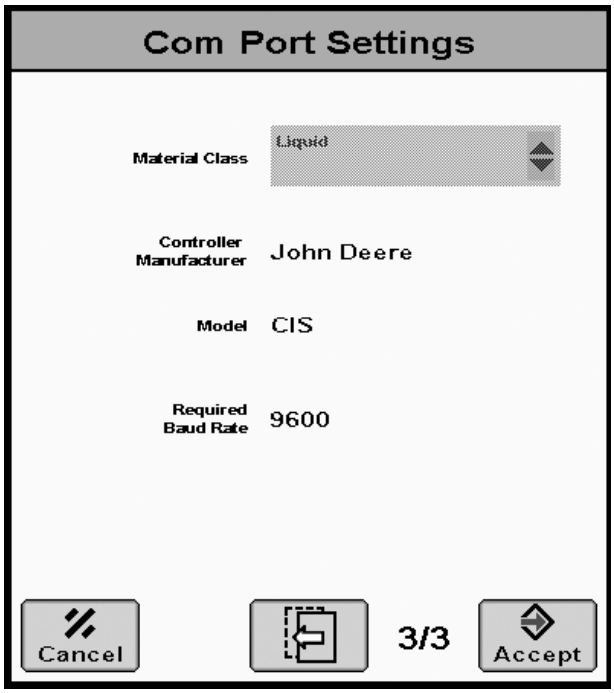


COM Port Settings Page 2

CZ76372,000015E -19-27SEP10-3/6

A controller summary page is shown. Press accept button to save settings and return to the Equipment Page.

After completing setup, the GS3 will attempt to connect to the CIS controller.



COM Port Settings Page 3

Continued on next page

CZ76372,000015E -19-27SEP10-4/6

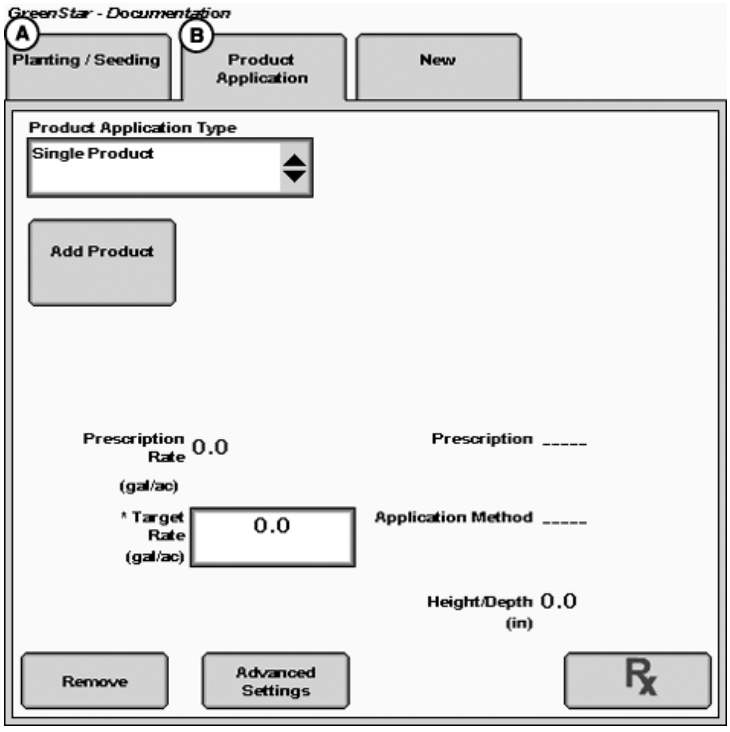
Select: MENU >> GREENSTAR 3 PRO >> DOCUMENTATION

PC8678 —UN—05AUG05



DOCUMENTATION softkey

CZ76372,000015E -19-27SEP10-5/6



PC12918 —UN—27SEP10

Documentation

A Seeding tab (A) is auto generated when a John Deere planter is on the CAN bus. A Product Application tab (B) is also auto generated when connection is established with the CIS controller. Specify all required information for both tabs.

CZ76372,000015E -19-27SEP10-6/6

Connecting RS-232 GPS Receivers

NOTE: AutoTrac requires CAN GPS messages from a StarFire receiver.

Non-John Deere GPS receivers that output correct NMEA 0183 standard messages can be used for documentation and manual guidance on GreenStar application. It is critical that receiver is setup to output following messages:

- GGA
- GSA
- RMC setup at 19200 baud (This is fixed and Non-adjustable)
- Data Bits 8
- Parity none
- Stop 1
- Flow Control none
- 1 or 5 Hz output rate (Recommend operation at 5 Hz. Guidance requires 5 Hz.)

Without these messages, receiver will not function with GreenStar application.

A harness and installation instructions are available to connect DB9 port of receiver to correct pins of display connector. See a John Deere dealer for more information.

OUO6050,0000CE1 -19-21JUL10-1/1

RS232 Harness kit

The RS232 Harness kit (PF90363) can be utilized to aid installation when connecting third party controllers or a GPS receiver to the GS3 display. This kit comes with Instructions, Null Modem, Gender Changer and Harness. The harness is approximately 1829 mm (6 ft) long and consists of a DB9 connector at one end and 5 wires with female AMP pins attached at the other. These AMP pins will be inserted into the square 26 pin connector that attaches to the back of GS3 displays from harnesses PF80687 and PF80688.

If both a 3rd party controller and receiver will be connected to the GS3 simultaneously, two PF90363 kits may be required. The Original GreenStar Field Doc Connect harness is only compatible with GS3 through the harness. When using the original FDConnect harness, you must choose Com port 1 in documentation setup.

Documentation with third party controllers

The list of GS3 supported controllers are the same as with Original GreenStar Display and is available at your local John Deere dealer.

Two serial ports are available in the GS3 display: Port 1 and Port 2.

Connect DB9 connector to controller. Gender Changer and Null Modem are required when connecting to Rawson and New Leader controllers. Properly configure the controller to talk to GS3:

Raven Controller: under the data menu key verify that bAUD = 9600, triG = 1, Unit = sec, dLOG = ON.

Rawson or New Leader Controller: verify that the settings under the “Controller” button of the GS3 display match the information on the controller (i.e. Mid Point on the GS3 Display should be the same value as on the Rawson or New Leader controller). GS3 will control only one channel of Rawson controller for use with prescriptions.

NOTE: Set Rawson or New Leader controller to GPS Mode (under Mode Key) to enable serial port communication with controller.

Connecting a third party receiver

AutoTrac requires CAN GPS messages from an original StarFire receiver or StarFire iTC receiver. Non-John Deere GPS receivers that output correct NMEA 0183 standard messages can be used for documentation and manual guidance with a GreenStar application. It is critical that receiver is setup to output the following messages:

- GGA
- GSA
- RMC setup at 19200 baud (This is fixed and Non-adjustable)
- Data bits 8
- Parity none
- Stop bits 1
- Flow Control none
- 1 or 5 Hz output rate (Recommend operation at 5 Hz. Guidance requires 5 Hz.)

Without these messages, receiver will not function with GreenStar application. From the receiver manufacturer’s wiring diagram, determine which wires from the receiver are the signal transmit and signal ground. Verify that Receiver Transmit connects to Pin 3 of the DB9 connector and receiver ground connects to pin 5 of the DB9. Look at the front face of the connector to see the pinout number designation.

Pinout number are located on the back side of the connector (where the wires are inserted).

To Setup RS232 Serial Port 1 on a GS3 Display	
RS232 Wire	Display Connector Pin #
Blue	Pin 23 = Rx
Green	Pin 22 = Tx
White	Pin 25 = CTS
Red	Pin 24 = RTS
Black	Pin 2 = Ground

To Setup RS232 Serial Port 2 on a GS3 Display	
RS232 Wire	Display Connector Pin #
Blue	Pin 15 = Rx
Green	Pin 26 = Tx
White	Pin 17= CTS
Red	Pin 16 = RTS
Black	Pin 4 = Ground

1. Remove the square connector from the back of the GS3 display and from all power sources on the vehicle.
2. The square AMP 26-pin display connector has a built in pin locking mechanism.
   a. Locate the large single white locking tab.
   b. Using a flat screwdriver, depress this tab. It will depress approximately 3 mm (1/8 in.).
   c. Two tabs on the opposing side will become exposed once the single large tab is depressed.
   d. Once these two white tabs are exposed, the connector pins are unlocked.
3. Use the chart at the beginning of this instruction to determine the pin locations for the desired Serial Port you will utilize (for example: Serial Port 1 uses pin locations 2, 22, 23, 24, & 25). Pin location numbers are stamped into the black housing on the back of the connector.
4. Remove the white plugs for the correct pins you will add the RS232 wires to. The white plugs will pull out easily with small needle-nosed pliers.

Continued on next page

5. Insert harness wires into correct pin locations. You may need to utilize a needle-nosed pliers to push the connections forward through the orange seal in the connector.
6. Once you have all 5 wires pushed up flush to the front of the connector face, you need to lock the pins back in place by pushing down on the 2 white locking tabs until they are flush.

Configure GS3: needs to be configured to recognize the device connected to the Serial Port. Assigned the Serial Port

1. Go to Menu | GS3 Pro | Letter F (GS3 Pro—Main) and select the Memory tab. Select Assign Serial Port.
2. Select the Serial Port(s).
3. Select the option based on the device connected to the Serial Port(s).
4. Arrow forward to complete.

For additional information see the installation instruction that came with the RS232 adapter.

CZ76372,0000142 -19-23AUG10-2/2

Video

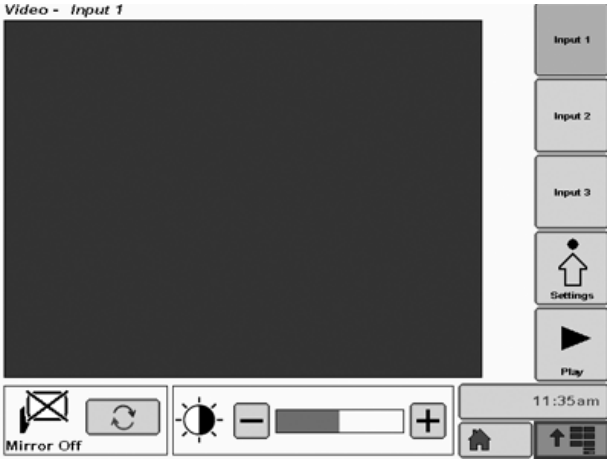
Video Application

CAUTION: Do not rely on a camera for collision avoidance or bystander detection. To avoid possible injury or death to operator or others, always remain alert and aware of surroundings when operating the machine. Read and understand AVOID BACKOVER ACCIDENTS in the safety section.

IMPORTANT: Correctly understand whether the camera is "mirrored" and whether the video application is mirrored.

- **Mount the camera in a sturdy and secure location.**
- **Understand the camera's field of view.**
- **Keep the camera properly serviced.**
- **Keep the camera lens clean.**

The video function allows the operator to view video from one camera at a time to observe areas around the machine that are difficult to see.



PC13247 —UN—15APR11

CZ76372,00002D4 -19-15APR11-1/1

Installing Video

The display supports 3rd party cameras with the following signal formats:

- NTSC (North America)
- Pal (Europe)

An adapter harness is available from several camera suppliers that connects to the 26 pin video connector on the back of the display.

The video pins on the 26 pin video connector (V2) are:

- Pin 8: Video 1 Signal
- Pin 14: Video 1 Ground
- Pin 20: Video 2 Signal
- Pin 21: Video 2 Ground
- Pin 22: Video 3 Signal
- Pin 11: Video 3 Ground

NOTE: These instructions do NOT cover camera and harness installation. Please read the instructions that come with your camera.

NOTE: A quality ground is essential to picture clarity.

CZ76372,0000280 -19-19APR11-1/1

Video Settings

Select MENU > VIDEO > SETTINGS.

PC12724 —UN—16AUG10



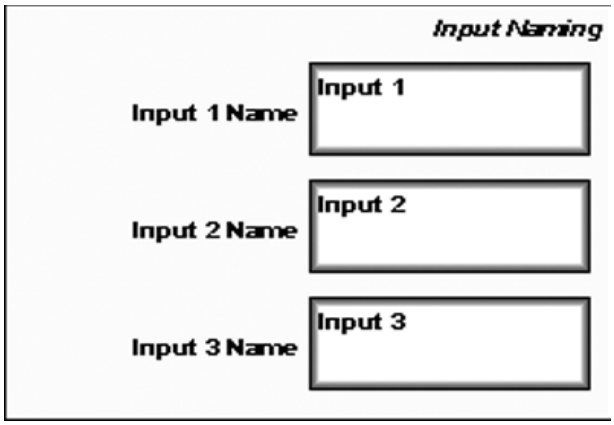
Video Menu Button

Continued on next page

CZ76372,00002D7 -19-15APR11-1/3

Naming

Each of the three camera inputs can be given a unique name so the operator can easily recognize each video source. Select the text box corresponding with the video input and enter the name. Each text box is limited to 7 characters.



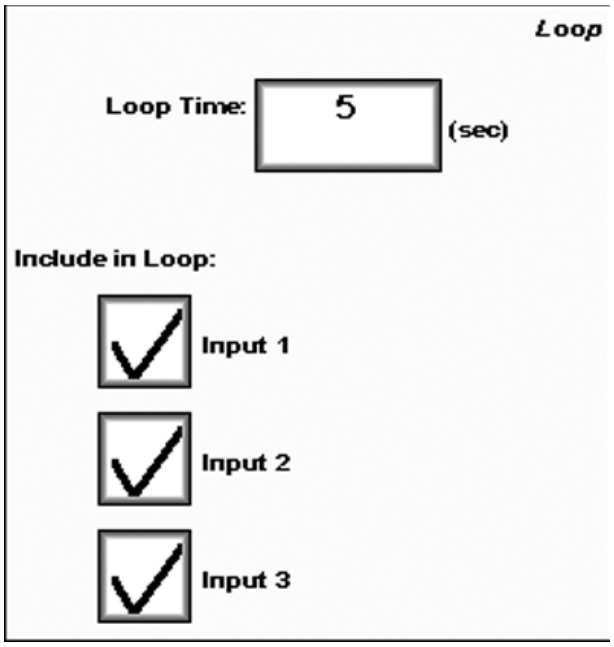
Naming Settings

CZ76372,00002D7 -19-15APR11-2/3

Video Loop

Instead of manually changing the video source to see the different camera views, the display can be configured to loop though the different sources. Enter the amount of time between changes of the camera view. Then select which videos will be included in the loop by checking the correct boxes.

Start the loop by pressing the Play softkey. Whenever you want the loop to stop, press the same button, now labeled Pause.



Loop Settings

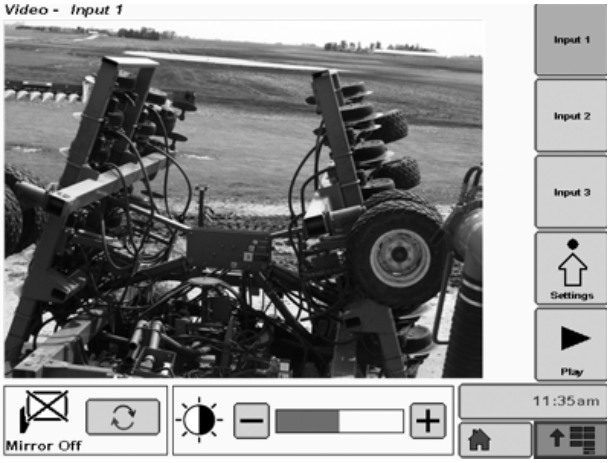
CZ76372,00002D7 -19-15APR11-3/3

Video Viewing

There are two locations to view video on the display.

Option 1: Select MENU > VIDEO.

Option 2: In the Layout Manager, setup a Home Page to view video. Video is available in either full screen or quarter screen.



PC13251 —UN—18APR11

CZ76372,00002D5 -19-18APR11-1/1

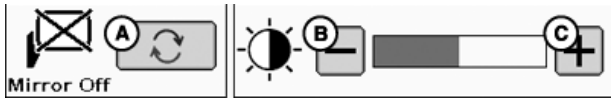
Adjusting Video Image Quality

Increasing the contrast will brighten the video, while decreasing contrast will darken the video.

Mirroring an image exchanges what is seen on the left and right sides of the image like a rear view mirror. The camera or the display could mirror the image. Check whether the image is mirrored before using the Video feature.

IMPORTANT: Correctly understand whether the camera is "mirrored" and whether the video application is mirrored.

PC13250 —UN—15APR11



Adjust Video Settings

A—Mirror Image Toggle
B—Decrease Contrast
C—Increase Contrast

CZ76372,00002D6 -19-15APR11-1/1

Theory of Operation

Data and setup information can be transferred to and from another GS3 2630 display or compatible desktop software using a USB flash drive. It is also important to backup your data to a USB flash drive periodically.

NOTE: Apex (v2.7 or newer) and several 3rd party desktop applications are compatible with the display.

Data and setup information are imported or exported as a Data Profile. Only Global prescription maps and shapefile prescriptions can be imported individually. Multiple Profiles from one or more displays can be stored on one USB flash drive IF they are given different names.

See the Data Type Details table to understand the types of data included in setup information versus maps and Documentation.

The internal memory is intended to have enough capacity to store all the data from a machine per season (e.g. planting or harvest). A message will appear when 90% of the memory is used. Data should be Exported and deleted before memory used exceeds 90%.

To view the Memory space remaining, go to:



PC12690 —UN—16JUL10

1. Menu >> GS3
2. GS3 softkey
3. Memory tab
4. Bar graph represents percent of total memory used, including system files.

CZ76372,00002DA -19-19APR11-1/1

Data Transfer Options

Export Data from the display

Data Profile is copied to the USB flash drive. Use this option in the following examples:

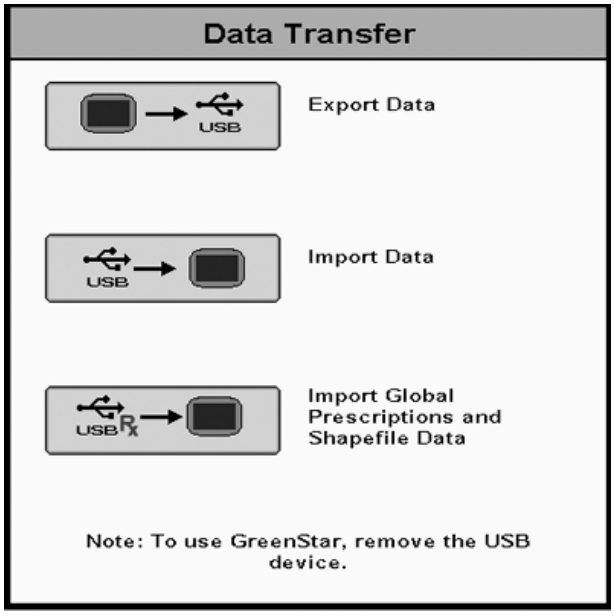
- Backup Documentation data to a USB flash drive
- Transfer setup information and guidance lines to another display
- Transfer setup information and guidance lines to compatible desktop software
- Transfer screenshots and debug files to a USB flash drive

Import Data to the display

Data Profile is copied to the display. This option does NOT import global prescriptions and shapefiles. Use this option in the following examples:

- Import Field Names, boundaries, and guidance lines from another GS3 2630 display or compatible desktop software
- Import coverage and swath control maps from another GS3 2630 display
- Import field specific prescription (Rx) files from compatible desktop software

Import Global Prescriptions to the display



PC13258 —UN—19APR11

Data Transfer Options

Only Global Prescription (GRx) files and shape files are imported into the display.

CZ76372,00002E3 -19-19APR11-1/1

Exporting Data from the Display

1. Turn off all types of Recording and stop the vehicle.
2. Insert USB drive.

IMPORTANT: USB drive should have at least 1GB of free memory. Large data sets may take several minutes to transfer. Power loss or removing the USB drive during data transfer may cause data loss.

3. A **Data Transfer** page will appear within about 10 seconds.
4. Select **Export Data.**
5. Select or create a **Profile Name** where the data will be stored on the USB drive.

*NOTE: Do not use of the following characters (\ / : * ? " < > |)when creating a Profile name. It will cause the profile to fail to load to a display or Apex.*

6. Select **Begin Transfer.**
7. When the data transfer is finished, a **Data Transfer is Complete** message will appear.

IMPORTANT: Exporting to an existing Profile will overwrite all setup information and data in that Profile except for Documentation files used by desktop software.



Export Data

Export takes less time when exporting repeatedly to the same Profile because the Documentation files (e.g. As-applied and Yield map files) that are already in the Profile on the USB are not exported again. See the Data Type Details table to understand what data will be overwritten during Export and review the examples below.

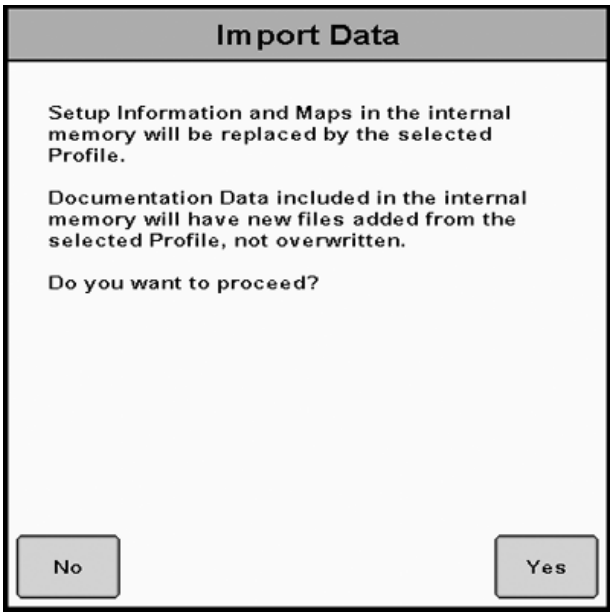
CZ76372,0000289 -19-19APR11-1/1

Importing Data to the Display

Import Data will replace the setup information in the internal memory of the display with the setup information in the Data Profile that is selected from the USB drive. Only Prescription files can be imported individually to the display. See the Data Type Details table to understand what data will be overwritten during Import.

IMPORTANT: Large data sets may take several minutes to transfer. Power loss or removing the USB drive during data transfer may cause data loss.

1. Turn off all types of Recording and stop the vehicle.
2. Insert USB drive.
3. A **Data Transfer** page will appear within about 10 seconds.
4. Select **Import Data.**
5. Select the **Profile Name** on the USB drive to be imported.
6. Select **Begin Transfer.**
7. When the data transfer is finished, a **Data Transfer is Complete** message will appear.


Import Data
Setup Information and Maps in the internal memory will be replaced by the selected Profile.
Documentation Data included in the internal memory will have new files added from the selected Profile, not overwritten.
Do you want to proceed?
No
Yes
PC13257 —UN—19APR11

Import Data Warning

CZ76372,000028A -19-19APR11-1/1

Importing Global or Shapefile Prescriptions

On a Desktop Computer

Insert a USB drive.

- Global Prescriptions (GRx) files:
  a. Create a folder named **GRx** in the root of the USB drive.
  b. Copy the **GRx** files into this folder.
- Shapefile Prescriptions:
  a. Create a folder named **Rx** in the root of the USB drive.
  b. Copy the shapefiles into this folder.

On the Display

1. Turn off all types of Recording and stop the vehicle.
2. Insert USB drive.
3. A **Data Transfer** page will appear within about 10 seconds.
4. Select **Import Global Prescriptions and Shapefile Data.**
5. When the data transfer is finished, a **Data Transfer is Complete** message will appear.

IMPORTANT: All Global and Shapefile Prescriptions on the display will be deleted prior to importing.

CZ76372,000028B -19-19APR11-1/1

Example 1 – Importing and Exporting Documentation Data

Operator 1 records Flags in a field as he is planting, so those areas can be sprayed for weeds. Currently, Operator 2 is spraying in a different field. Both machines have GS3 2630 displays. Below is one method to properly manage the data on both displays:

Prior to the season:

1. Using Apex the Farm Manager saved the Machine and Implement settings for all of his equipment along with field and product setup data to a USB drive with the Profile name [2011.4.15 Setup].
2. Operators 1 and 2 both Imported this Profile into their displays.

Current day:

1. Operator 1 finishes planting the field, Exports the data from his display to the USB drive, naming the Profile [2011.5.1 Planting].
2. The same day, Operator 2 receives the USB drive from Operator 1 and first Exports the data from his GS3 2630 on the sprayer, so that no data is lost when he Imports the planter data. He Exports to the same USB drive, using a different Profile name [2011.5.1 4730 Sprayer]. Now there are now 3 Profiles in the GS3_2630 folder on the USB drive.
3. Operator 2 then Imports the Profile [2011.5.1 Planting]. He verifies the Machine and Implement settings for his sprayer and sprays the flagged areas in the field.
4. Operator 2 then Exports the data to the same Profile name [2011.5.1 Planting]. This allows the Export to go faster and no data is lost.
   Question — At this point will the As-applied rate maps from the first fields that Operator 2 was spraying be in the Profile [2011.5.1 Planting] on the USB drive?
   Answer — Yes, because when Operator 2 Imported [2011.5.1 Planting], the As-applied maps on the display were NOT overwritten. When he Exported in Step 4, all of the As-applied maps in the display were saved to the Profile [2011.5.1 Planting] on the USB drive.
   See the Data Type Details table to understand what data is overwritten during Import and Export.
5. Operator 2 then Imports his previous Profile [2011.5.1 4730 Sprayer] back into his display, so that he has the setup data and maps from the fields he was previously spraying.
6. Later, the Farm Manager unloads the data from the USB drive to Apex. Apex automatically finds setup information and data from all 3 Profiles. When files have duplicate names, the files that were most recently changed will be Unloaded to Apex.

CZ76372,00002DB -19-19APR11-1/1

Example 2 – Backup Documentation Data

A farmer has purchased a GS3 2630 display to replace his GS2 2600 display. He plans to use the GS3 2630 in both his planter and combine. He wants to backup his data from the display frequently and plans to give the data to his crop consultant at the end of planting and harvest. He does not plan to Import any data to his display during the season. Below is one method to properly manage the data:

Prior to the season:

1. The Farmer unloads the data from his GS2 2600 compact flash card to Apex.
2. He saves all necessary setup information and guidance lines for planting from Apex to a USB drive, naming the Profile [Planting 2011].
3. He Imports the Profile [Planting 2011] into his new GS3 2630.

During to the Planting Season:

1. At the end of each day during planting, the farmer Exports data to the same profile [Planting 2011].

NOTE: Export takes less time when exporting repeatedly to the same Profile because the As-applied and Yield map log files that are already in the Profile on the USB drive are not exported again. In this case, the farmer is NOT importing data, so he is NOT managing multiple Profiles and the risk of overwriting setup information or data unintentionally is low.

After the Planting Season:

1. The Farmer gives the USB drive to his crop consultant, who copies the Profile [Planting 2011] and gives the USB drive back to the farmer.
2. The Farmer deletes Documentation Data Only and Clears Maps from the displays internal memory, so that Export times are faster during harvest. Setup information, guidance lines, and boundaries remain on the display.

See the Data Type Details table to determine what data will be deleted for each option.

During Harvest Season:

1. At the end of each day during harvest, the farmer Exports data to the same Profile, named [Harvest 2011]. This way the [Planting 2011] Profile remains on the USB as a backup.

CZ76372,00002DC -19-19APR11-1/1

Example 3 – Transferring Guidance Lines

Operators 1 and 2 are both planting in the same field with 12 and 24 row planters respectively and would like to operate on the same guidance tracks. Both machines have GS3 2630 displays. Below is one method to properly manage the data on both displays:

1. Operator 1 enters the field first and creates a straight track, naming it [Planter N-S 2011].
2. After 1 pass, Operator 1 Exports the data from his display to a USB drive, naming the Profile [2011.5.3 Planter 12 row].
3. Operator 2 is given the USB drive and first Exports the data from his display, so that no data is lost when he Imports the Profile from Operator 1. He Exports to the same USB drive, using a different Profile name [2011.5.3 Planter 24 row]. Now there are now 2 Profiles in the GS3_2630 folder on the USB drive.
4. Operator 2 then Imports the Profile [2011.5.3 Planter 12 row]. He needs to enter the Machine and Implement settings for his planter because they were not entered previously into that Profile. He then selects the Guidance line [Planter N-S 2011] and any other necessary setup information.
   Question — At this point, are any of the guidance lines that Operator 2 created previously still on his display?
   Answer — No, those lines were overwritten when he Imported the Profile from Operator 1, but they are saved on the USB drive in Profile [2011.5.3 Planter 24 row].
5. Two days later, Operator 2 wants to save a backup of the data on his display. He Exports data to the same USB, giving the Profile a different name that he can remember [2011.5.5 Planter 24 row] to clearly indicate where the data is from and ensure that no data is overwritten.

CZ76372,00002DD -19-19APR11-1/1

Example 4 – Importing Global Prescriptions and Shapefiles

A farmer is using a GS3 2630 display for planting. He has 3 different crop consultants bringing him prescription Shapefiles at different dates throughout planting season. Below is one method to properly manage the data:

NOTE: The Import Global Prescriptions and Shapefile Data option only imports Global and Shapefile prescriptions. It deletes all Global and Shapefile prescriptions that are already on the display, but it does NOT overwrite any other data.

1. The farmer leaves a USB drive in the tractor for the consultants.
2. He instructs the consultants to save the prescription Shapefiles to that USB drive. That way, the Shapefiles from all 3 consultants will be on the USB drive and they will all be Imported to the display. If the consultants were to Import their Rx files directly into the display, the Rx files from the last consultant would be deleted.
3. The farmer imports the Rx files to the display.

CZ76372,00002DE -19-19APR11-1/1

Example 5 – Modifying a Profile

An operator begins planting a field and then determines that he wants to use a different Prescription (Rx) map. He has the new Rx map in Apex, but he is using Swath Control and wants to continue using the same coverage and Swath Control maps to complete the field. Below is one method to properly manage the data:

1. The operator Exports Data naming the Profile [2011.5.3 Planter 24 row].
2. The operator then saves the Rx map from Apex to the same Profile [2011.5.3 Planter 24 row]. The coverage and Swath Control maps remain in that Profile on the USB drive.
3. The operator then Imports the same Profile [2011.5.3 Planter 24 row] back into his display.

IMPORTANT: The operator did NOT continue planting during the time that he Exported and Imported data. If he had, then the data he recorded during that time would have been lost during the Import.

CZ76372,00002E4 -19-19APR11-1/1

Transferring Data between Two Displays

Apex or a compatible 3rd party desktop software is required for transferring data and setup information between different John Deere Display models (i.e. Original GreenStar Display, GS2 1800, GS2 2600, and GS3 2630). Due to different file versions, data will not load when transferred directly between different models.

CZ76372,00002DF -19-19APR11-1/1

Delete Data Options

There are four options for deleting data from the display:

1. Delete Coverage and Swath Control Maps

- Delete at the end of the season or to create a new map with the same Field Name.
- Go to Menu >> GS3 >> Mapping >> Map Settings >> Clear

2. Delete Adaptive Curve Data

- If using Adaptive Curves, delete Curve Data when no longer needed to repeat these guidance lines.
- Go to Menu >> GS3 >> Guidance >> Guidance Settings tab >> Change Curve Track Settings >> Clear Data

3. Delete Documentation Data Only

- This option may be used for the following reasons:
  a. You want to delete your planting rate maps after planting season, so that there is less data on the display and data transfers will take less time during harvest.
  b. The internal memory is full.
- Go to Menu >> GS3 >> GS3 softkey >> Memory tab >> Erase Data >> Documentation Data

4. Delete All Data

- All data and setup information will be deleted from the display. This option is rarely used and may be used for the following reasons:
  a. You want to start over
  b. You want to sell the display to someone else
  c. You think the setup data may be causing a problem to occur on the display.
- Go to Menu >> GS3 >> GS3 softkey >> Memory tab >> Erase Data >> All Data

See the Data Type Details table to determine what data will be deleted for each option.

CZ76372,00002E0 -19-19APR11-1/1

Data Type Details

Data Type	File Type	Created in	Read by	Deleted with Documentation Only Option	Deleted when maps are cleared	Overwritten when Importing / Exporting
Client/Farm/Field	Setup.fds*	Display and Apex	Display and Apex	No	No	Yes
Tasks						
Machine / Implement. Settings						
Crop / Product Settings						
Guidance Lines	JDShape	Display and Apex	Display and Apex	No	No	Yes
Boundary	JDShape	Display and Apex	Display and Apex	No	No	Yes
Flags	JDShape	Display and Apex	Display and Apex	No	No	Yes
Swath Control Map	Grid	Display	Display only	No	Yes	Yes
Coverage Map	Grid	Display	Display only	No	Yes	Yes
As-applied / Yield Map	Grid	Display	Display only	No	Yes	Yes
As-applied / Yield Map	Log	Display	Apex only	Yes	No	No
Totals	Database	Display	Display and Apex	No	No	Yes
ESRI Shapefiles	ESRI® Shapefile**	3rd Party Software	Display and Apex	No	No	No
Global Rx	Grid**	Display (Shapefile Converter)	Display	No	No	No
Field Specific Rx	JDShape	Apex	Display and Apex	No	No	Yes
Variety Locator	Grid	Apex	Display and Apex	No	No	Yes
Aerial Images	Grid	Apex	Display and Apex	No	No	Yes
SW Ditches / Levees	JDShape	Display	Display and Apex	No	No	Yes
SW Surveys	Grid	Display	Display and Apex	No	No	Yes
ISO File Server***	Anything	Controllers	Controllers	No	No	No

* Incorrect Setup data version causes "Incompatible Setup Data" alarm on display.

***Data is stored on USB drive and not imported to display.

** Overwritten when importing GRx or Shapefiles.

CZ76372,00002E1 -19-19APR11-1/1

USB Troubleshooting Tips

The USB connectors on the side of the display are intended to only work with the USB drives, not smart phones or other devices. If a USB drive is inserted and nothing happens:

- Wait 10 seconds, because large USB drives may take time to be recognized
- Use the other USB connector
- Format the USB drive (FAT or FAT32 format)
- Use a different USB drive

CZ76372,000028C -19-19APR11-1/1

Alarm – GreenStar Setup Data Invalid

To Import data to the display from Apex desktop software, the software versions on each must be compatible. The compatible software versions are listed in the Software Update release notes.

When the display software needs to be updated to be compatible with the Apex software version, the following warning will appear.


GS3
GreenStar Setup Data Invalid
The display software version is older than the setup data version. A backup profile will be automatically saved and default setup data loaded.
Update your display software and import a valid profile.
Accept

PC13253 —UN—19APR11

Update Display Software

CZ76372,00002E5 -19-19APR11-1/2

When the Apex software needs to be updated to be compatible with the display software version, the following warning will appear.


GS3
GreenStar Setup Data Invalid
The setup data was created with an older version of desktop software. A backup profile will be automatically saved and default setup data loaded.
Update your desktop software and import a valid profile.
Accept

PC13254 —UN—19APR11

Update Desktop Software

CZ76372,00002E5 -19-19APR11-2/2

Alarm – GreenStar Setup Data Corrupt

If the setup data in the internal memory of the display becomes corrupt, the display will not fully boot up. After the display tries to boot up 3 times unsuccessfully, the following warning will appear.

After the alarm is accepted, the display will boot up and all settings will be blank. The setup information and data from the internal memory will be saved to a backup Profile in the internal memory and can be exported to a USB drive by the user. The user has 2 options:

1. Re-enter the setup information manually. The display will NOT be able to use the coverage maps and guidance lines in the backup Profile.
2. Export Data and use a compatible desktop application to save new setup information to the same backup Profile on the USB drive. The display should now be able to use the coverage maps and guidance lines in that backup Profile.


GS3
GreenStar Setup Data Corrupt
The setup data is corrupt. A backup profile will be automatically saved and default setup data loaded.
Import a valid profile.
Accept

PC13255 —UN—19APR11

Setup Data Corrupt

CZ76372,00002E6 -19-19APR11-1/1

Updating Software

Downloading Software Updates

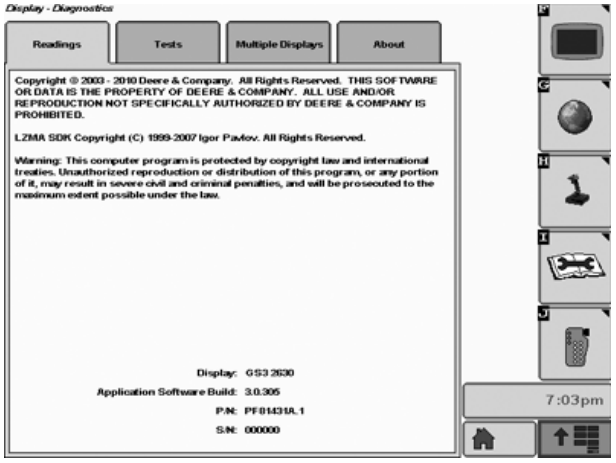
Software updates are periodically released for GreenStar displays and other GreenStar system components to provide enhancements and performance improvements. These updates are managed by a desktop application called GreenStar LiveUpdate, which can be downloaded from www.StellarSupport.com. Once installed on your computer, GreenStar LiveUpdate will download the most recent update, copy that update to your USB drive, and notify you when future updates are available.

Software updates for GreenStar system components such as StarFire Receivers, AutoTrac Universal, GreenStar Rate Controller, etc. are also downloaded via LiveUpdate and copied to the USB drive along with the display update. These components can be updated via the display, if they are connected to the display when the USB drive is inserted.

CZ76372,000028D -19-12JAN11-1/1

Determining Software Version on Display

1. Menu
2. Display
3. Display Diagnostics
4. Readings Tab
5. Read the Application Software Build


Display - Diagnostics
Readings
Tests
Multiple Displays
About
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LZMA SDK Copyright (C) 1999-2007 Igor Pavlov. All Rights Reserved.
Warning: This computer program is protected by copyright law and international treaties. Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Display: GS3 2630
Application Software Build: 3.0.305
P/N: PF01431A.1
S/N: 000000
7:03pm
PC12688 —UN—16JUL10

Software Version

CZ76372,00000CD -19-16JUL10-1/1

Updating Display and System Components

1. Download and copy the software update files to a USB drive using GreenStar LiveUpdate.

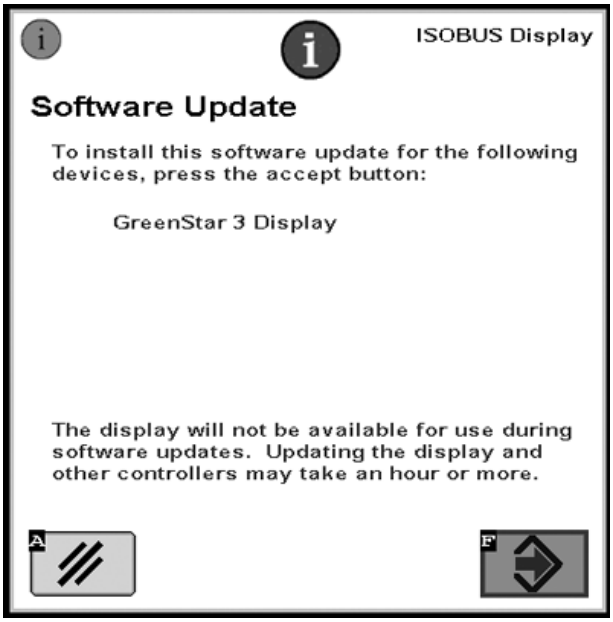
   NOTE: It is recommended to clean all files off the USB drive before copying the software update files to it. Do NOT have software update files for a different display model on the USB drive.

2. Turn the machine ignition to the run position.
3. Insert the USB drive into the display.
4. A USB Device Detected message will appear if the display recognizes the USB drive. Read and Accept it.
5. The display will check the software versions of the all the connected components against the versions on the USB drive and a Software Update message will appear listing all of the components that have new versions available on the USB drive.
   - Select the green arrow to Accept the software update.
   - Select the button with 3 lines to Cancel the update. The Software Update message will be available again the next time the USB drive is inserted.

   IMPORTANT: Do not turn off power or remove USB drive while display is reprogramming. Doing so can damage display and put software in an irrecoverable state.

   NOTE: The display will not be available for use during software updates. Updating the display and other controllers may take an hour or more.

   NOTE: If this message is not displayed, download and copy the software update to the USB drive again.


ISOBUS Display
Software Update
To install this software update for the following devices, press the accept button:
GreenStar 3 Display
The display will not be available for use during software updates. Updating the display and other controllers may take an hour or more.
A
F

PC13092 —UN—12JAN11

Software Update

   NOTE: The display will reboot itself during the update.

6. A message stating The Update Was Successfully Installed will appear when the update is complete.
7. Remove the USB drive.

   NOTE: The display update files will be copied to the display, but the install files for the other system components will not.

CZ76372,000028E -19-12JAN11-1/1

Message Center

Message Center is used to access detailed diagnostic information and to manually initiate re-programming sessions. Message Center can also display detailed diagnostic information such as Control Unit Information and CAN Bus Information, used by your John Deere ™ Dealer for advanced troubleshooting.

Soft Keys are listed below:

- A-Message Center Reprogramming Page
- B-Transfer Debug Files
- C-Messages
- D-Diagnostic Addresses
- E-Trouble Codes
- F-Control Unit Information
- G-Bus Information

PC8663 —UN—05AUG05



MENU button

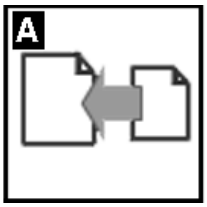
PC12868 —UN—16SEP10



MESSAGE CENTER button (With Info Icon)

Message Center screen can be reached by selecting the MENU button then MESSAGE CENTER button (With Info Icon).

CZ76372,00002F0 -19-28APR11-1/8



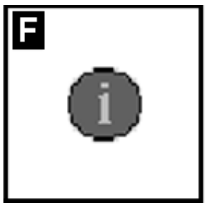
PC8665 —UN—05AUG05

COMPONENTS AND SOFTWARE VERSIONS button



PC13266 —UN—28APR11

DATA CLEANUP button



PC8667 —UN—05AUG05

MESSAGES button



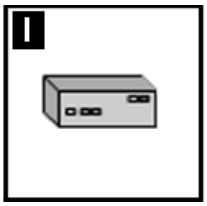
PC8668 —UN—05AUG05

DIAGNOSTIC ADDRESSES button



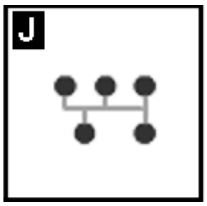
PC8669 —UN—05AUG05

TROUBLE CODES button



PC8670 —UN—05AUG05

Electronic CONTROL UNIT INFORMATION button



PC8671 —UN—05AUG05

BUS INFORMATION button

Message center will display all active alarms, alert messages and icons.

Continued on next page

CZ76372,00002F0 -19-28APR11-2/8

Message Center Icons

These icons are used throughout Message Center.

PC8582 —UN—01NOV05



CANCEL

PC8648 —UN—01NOV05



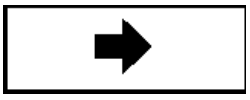
CLEAR

PC8649 —UN—01NOV05



ENTER

PC8650 —UN—01NOV05



GOTO

PC8651 —UN—01NOV05



NEXT CAL

PC8652 —UN—01NOV05



RETURN

CZ76372,00002F0 -19-28APR11-3/8

COMPONENTS AND SOFTWARE VERSIONS button will allow users to view all components on the network and the software versions loaded to them. You may also use the reprogram device button to reprogram a specific controller if necessary.

PC8663 —UN—05AUG05



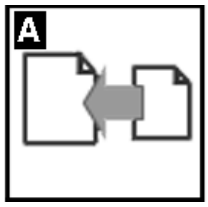
MENU button

PC12868 —UN—16SEP10



MESSAGE CENTER button (With Info Icon)

PC8665 —UN—05AUG05



COMPONENTS AND SOFTWARE VERSIONS button

Continued on next page

CZ76372,00002F0 -19-28APR11-4/8

Diagnostic Addresses

NOTE: Diagnostic addresses are available to access specific diagnostic information. This information can assist the John Deere Dealer in diagnosing problems. Different device controllers can be selected from drop-down box, as shown.

Select DIAGNOSTIC ADDRESSES button. The number of devices available will depend upon machine configuration. The list of addresses can be scrolled up or down with rotary thumb wheel. Selecting an address will show data for that address.

PC8663 —UN—05AUG05



MENU button

PC12868 —UN—16SEP10



MESSAGE CENTER button (With Info Icon)

PC8668 —UN—05AUG05



DIAGNOSTIC ADDRESSES button

CZ76372,00002F0 -19-28APR11-5/8

Trouble Codes

Select TROUBLE CODES button, a list of controllers will appear and controllers with diagnostic codes are indicated.

Individual controllers can be accessed by navigating with rotary thumb wheel and selected by selecting ENTER button, to view codes for that controller.

Codes can also be displayed for all controllers by selecting SHOW ALL button with rotary thumb wheel and selecting ENTER button. Codes can be relayed to a John Deere dealer to assist in diagnosing machine problems.

PC8663 —UN—05AUG05



MENU button

PC12868 —UN—16SEP10



MESSAGE CENTER button (With Info Icon)

PC8669 —UN—05AUG05



TROUBLE CODES button

Continued on next page

CZ76372,00002F0 -19-28APR11-6/8

Device Info and Bus Status

When DEVICE INFO button is selected, controllers communicating on CANBUS communication system will be indicated. Message counts indicate quantity of communications from controller. When BUS STATUS button is selected, status of various communication networks will be indicated.

PC8663 —UN—05AUG05



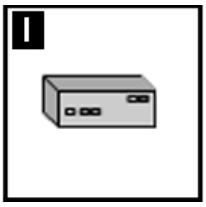
MENU button

PC12868 —UN—16SEP10



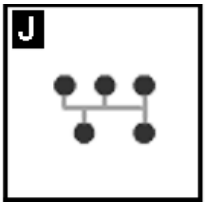
MESSAGE CENTER button (With Info Icon)

PC8670 —UN—05AUG05



Electronic CONTROL UNIT INFORMATION button

PC8671 —UN—05AUG05



BUS INFORMATION button

CZ76372,00002F0 -19-28APR11-7/8

Data Cleanup

DATA CLEANUP will only be available when an ISO Implement is connected.

DATA CLEANUP is used to remove ISO Implement data from the display. The information will be reloaded after the display restarts. This is useful if there was a problem with a controller loading on the display. See the ISO Implements section of this Operator's Manual for more information.

PC8663 —UN—05AUG05



MENU button

PC12868 —UN—16SEP10



MESSAGE CENTER button (With Info Icon)

PC13266 —UN—28APR11



DATA CLEANUP button

CZ76372,00002F0 -19-28APR11-8/8

Viewing Basic Diagnostic Readings

Basic display diagnostics such as operating voltage, and CAN bus status can be found on the Diagnostics Readings Page.

This information maybe requested by your John Deere ™ dealer to aid diagnostics.

1. Select Menu button.
2. Select Display .
3. Select Diagnostics soft key.
4. System diagnostics are located on Display Settings Readings page.

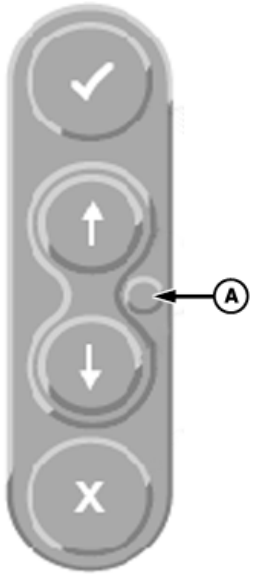
OUO6050,000129B -19-19JUL10-1/1

Resetting Display

IMPORTANT: All setup data entered since power up could be lost when using reset button.

Should display fail to respond to operator inputs, system can be reset by selecting and holding the reset button for 3 seconds (until the light on the front of the display starts blinking). This will reboot system and restart all applications on display. If resetting the display is frequently required, contact a John Deere dealer. It is recommended to turn power off before attaching or removing implements and other electrical components on CAN Bus communication system.

A—DISPLAY RESET button



PC8705 —UN—17AUG05

OUO6050,0002328 -19-13OCT09-1/1

Pre-Season Checklist for Seeding

In the Office

☐ Review all current Operator's Manuals, Quick Reference Guides, Installation Instructions, and Product Updates
☐ Read and perform all implement calibration procedures for your machine(s)
☐ Review Prescriptions for Map Based Prescriptions in Apex or other compatible desktop software

In Apex

NOTE: Apex is not available in all EAME countries.

☐ Ensure all farm and field names are entered and accurate
☐ Enter all seed varieties
☐ Enter all flags for tracking
☐ Save all data to your USB Flash Drive

In the Machine

☐ Make sure the display address is set to "primary"
☐ Adjust backlighting and contrast on the GS3 display
☐ Set record stop/delay height

In the Field

☐ Check StarFire receiver for GPS Signal
☐ Review Pre-Season Checklists for your specific machine and implement

NOTE: When checking for GPS signal, move machine to open view of sky and turn key to second position. If receiver has been stored for longer than six months, it may take the receiver one to two hours to lock on to a GPS and/or differential signal.

CZ76372,000018C -19-04OCT10-1/1

Pre-Season Checklist for Guidance

In the Office

- ☐ Review all current Operator's Manuals, Quick Reference Guides, Installation Instructions, and Product Updates
- ☐ Read and perform all implement calibration procedures for your machine(s)

In Apex

NOTE: Apex is not available in all EAME countries.

- ☐ Ensure all farm and field names are entered and accurate
- ☐ Import A/B lines from Original GreenStar System or GS3
- ☐ Tie Global A/B lines to client, farm and field

In the Machine

- ☐ Adjust backlighting and contrast on the GS3 display
- ☐ Turn tracking to desired mode) Straight, Curve Track, RowFinder
- ☐ Unsure machine has latest SSU Software
- ☐ Set offsets
- ☐ Set steer sensitivity

In the Field

- ☐ Check StarFire receiver for GPS Signal

NOTE: When checking for GPS signal, move machine to open view of sky and turn key to second position. If receiver has been stored for longer than six months, it may take the receiver one to two hours to lock on to a GPS and/or differential signal.

CZ76372,00000B3 -19-09JUL10-1/1

Pre-Season Swath Control for Planters Checklist

1—2 Weeks Prior to Planting

NOTE: Apex is not available in all EAME countries.

- ☐ Become familiar with the product.
  The following resources are available on www.StellarSuport.com
  - ☐ Familiarize yourself with the GS3 by utilizing the online GS3 simulator
  - ☐ Read the Swath Control section of the GS3 Basics Operators Manual
  - ☐ Read the GreenStar Rate Controller Operators Manual
  - ☐ Read the Swath Control Settings Quick Sheet
- ☐ Make sure all software is updated to most recent versions:
  - ☐ GS3 version 2.01222 or higher
  - ☐ GreenStar Rate Controller version 2.01k or higher
  - ☐ Apex 2.0 Production version or higher
- ☐ Record exterior and interior boundaries (if needed)
- ☐ Apex Setup
  - ☐ Input setup data into Apex (new varieties, crops, farm names, etc.)
  - ☐ Save setup data to your USB drive
  - ☐ Insert USB drive into GS3, import setup data, and verify import was successful

Day of Planting

- ☐ GreenStar Rate Controller setup
  - ☐ Machine setup
  - ☐ Section setup
- ☐ Swath Control setup
  - ☐ Clear any preexisting coverage maps for field (if needed)
  - ☐ Define minimize skips, minimize overlap or percent overlap for exterior, interior, and coverage areas
  - ☐ Setturn on/off times
- ☐ GS3 Documentation setup
  - ☐ Resources/Conditions—clent, farm, field, and task
  - ☐ Equipment—machine and offsets
  - ☐ Operation—seed type, brand, variety, rate, etc.
  - ☐ Prescriptions—choose prescription (if needed)
  - ☐ Verify sections
  - ☐ Verify offsets
- ☐ Enable Swath Control (place check mark in box)
- ☐ Enable all sections through the GS3 or turn on section switches using the switchbox
- ☐ Turn on Master Switch (foot switch or switchbox)
- ☐ Make a partial or complete pass
- ☐ Verify seed placement by digging

Additional Resources—available on www.StellarSupport.com

- Swath Control QRG
- GreenStar Rate Controller QRG
- Swath Control Settings Quick Sheet
- GS3 button (H) Setup Guide
- Tips for Operating iTEC Pro and Swath Control

CZ76372,00002F9 -19-28APR11-1/1

Frequently Asked Questions

- **Q:** When I try to record in GreenStar 3, I get the message, Implement Recording Not Allowed. What do I need to do to fix this?

  A: Verify you have the correct Client, Farm, Field and Task set up under GS3 button (G). Then, make sure you have an operation setup in button (I). If you have Tillage, Product Application, or Other operation defined, verify you only have one operation set up. If running a Planting or Seeding operation, it is possible to set up a Product Application operation as well. If the error message remains, select button (C) and select Recording from the drop-down menu. This is a Recording Diagnostics page and will give you an idea of why the system will not allow recording.

- **Q:** I'm attempting to dial-in my AutoTrac Universal system and don't understand what each sensitivity is for.

  A: Refer to the AutoTrac Universal Quick Reference Guide that came with your AutoTrac Universal System, or print it off from the www.StellarSupport.com website. It defines these and other terms:

  Steer speed is how fast the ATU wheel turns.

  Acquire sensitivity is how aggressively the unit drives to the line.

  Line Sensitivity Tracking is used to keep the lateral error low. If your machine gets offline up to a foot, the Tracking Sensitivity may be set too low.

  Line Sensitivity Heading adjusts how much the unit corrects for heading error. If you see a lot of left and right steering, the Heading Sensitivity may be set too high.

  Each sensitivity has an optimum value that works best for the specific vehicle platform you are using. Refer to www.StellarSupport.com for recommended starting points for your vehicle platform.

- **Q:** I would like to use the coverage map feature in GreenStar 3. How do I properly set this up?

  A: Select GS3 button (A) and select Map Settings. Then select the drop-down menu for Foreground and select Coverage. This selection will paint the map a light blue color. If you are seeding or applying chemical, you can select either Seed Rate 1 or Product Rate 1 as Foreground. Either of these selections will color the map based on a legend that corresponds with the amount of seed or product applied.

- **Q:** My GreenStar 3 does not recognize setup data saved from Apex or other compatible desktop software. What do I need to do to get this working properly?

  NOTE: Apex is not available in all EAME countries.

  A: Verify that both the display and desktop software have the latest software versions. Go to StellarSupport.com to determine the latest versions for the display and Apex. If using Apex, make sure to have the proper items check marked (e.g. Enterprise, Products, Resources, etc.) when saving data to the USB drive. Then select the correct drive letter for the USB drive by the GS3 2630 display option.

- **Q:** My AutoTrac Universal unit will not activate when I get a StarFire signal in the mornings. Do I have to drive around for a while before the resume switch engages AutoTrac Universal?

  A: ATU relies solely on the StarFire Receiver to obtain information about the direction you are traveling. Therefore, if the signal has been acquired, but no vehicle movement has taken place, the Direction under Info, AutoTrac will say unknown. Watch this Direction while driving forward in a gentle curve. As soon as it changes from Unknown to Forward the ATU unit will operate properly when you activate AutoTrac.

- **Q:** What is the proper way to cycle power on my GreenStar 3 display?

  A: Turn the key off, the screen will go dark and the green LED light in the bottom right corner will go out. After the LED light is off, the system may be powered back on. If the GS3 has been powered off for less than 24 hours, it will power right up to the last screen used. If it has been more than 24 hours, you will see the John Deere logo as well as a progress indicator at startup.

- **Q:** I want to use a prescription in my new GreenStar 3 system and I want to be able to see the as-applied map over the top of my anhydrous prescription layer. How do I set this up?

  A: Save the prescription to your USB drive in Apex or other compatible desktop software. Select GS3 button (A), and select Map Settings at the bottom of the page. Select the prescription as the background layer. Choose Product Rate 1 that comes from your approved controller as the foreground layer. Then configure your homepage with the desired information.

- **Q:** What causes the StarFire receiver signal strength bar on my GS3 homepage to turn orange and display an alert symbol?

  A: If the number of satellites in a solution drops to six or below, you are receiving a marginal signal which results in an orange bar and an alert sign. If there are less than five satellites in a solution, the bar will be red, indicating no GPS signal. For the bar to be green, there must be at least seven satellites in a solution.

- **Q:** Why do I get message saying, Recording is Not Allowed when I try to turn GS3 Recording on even though my signal strength is good?

Continued on next page

A: This is a common error if multiple recording operations have been selected. Go to the GS3 menu and select GreenStar 3 Pro. Select button (I) to enter the GS3 Documentation screen, and make sure there are no duplicate operation tabs displayed at the top of the screen. If there are duplicates, select the operation that does not belong and select the “Remove” button.

- **Q:** I get the error message Implement Recording not allowed on my GreenStar 3 Display. What should I do about it?

  A: Check Diagnostics page (C) from the GreenStar 3 Pro Menu and change the view box from Deere GPS to Recording. This should tell you what recording was stopped, and you can make the necessary adjustments.

- **Q:** When I spray or plant using both the Original and GS3 Displays, I get error message "ID 234" or "Display address claim conflict." What does this mean and what should I do?

  A: Both displays are trying to run as the primary display. If the GS3 is the actual primary display, power down and unplug it, then power up again with only the Original GreenStar Display plugged in. Go to SETUP > ORIGINAL GREENSTAR MONITOR > DISPLAY ADDRESS and set it as the primary. Now plug in the GS3 Display with the power still running on the Original display. If you have two Original GreenStar displays, hook them up to the primary connections and turn on the power. Go to SETUP > ORIGINAL GREENSTAR MONITOR and select line D, so it shows as primary. Turn off the power, unhook the primary processor and display, and hookup the secondary display to the auxiliary connections. Power up and go to SETUP > ORIGINAL GREENSTAR MONITOR and select line D to set to Aux 1. Now power down and hook up the processor, primary display, and secondary display to the correct connections. Finally, power up once more. You may have to run Standard Run Page Layout from the Setup menu after you are set up.

- **Q:** I lost the StarFire iTC button from the GS3 Main Menu. How can I get it back?

  A: Go to MENU > MESSAGE CENTER > button (A), highlight GPS Receiver, select Reprogram Device and select current software (3.70E). Contact your dealer if problem persists.

- **Q:** Why did my AutoTrac options disappear from my GS3 Display?

  A: First, check the GPS status to see if you are receiving signal, and ensure the Terrain Compensation Module is on and calibrated. You can also check the button (F) from the GreenStar 3 Pro Menu to see if the AutoTrac line shows as active. If not, call 1-888-953-3373 to activate it.

- **Q:** I used Swath Control on my GS3 System on a field that I want to reapply, but the system shows the field as already covered and won’t allow me to spray it again.

  A: You need to create a new task so that same field will appear as a completely separate layer. The GS3 coverage map will then be blank, and you’ll be allowed to spray the field again.

- **Q:** What is Shading?

  A: Shading occurs when obstacles such as trees, buildings or other solid objects block all or part of a satellite(s) signal. GPS satellites emit two frequencies, L1 and L2. The L2 frequency is weaker than L1, and thin objects, like tree leaves, will block L2 easily where the L1 signal will go right through. To run AutoTrac, the StarFire requires a 5 satellites solution with full communication with the both the L1 and L2 frequencies from each satellite.

- **Q:** What is Optimize Shading?

  A: The Optimize Shading feature, available with StarFire iTC software versions 3.01K and newer, allows you to continue using AutoTrac when SF1/SF2 reception is degraded due to shading. Optimize Shading allows a minimum of 4 satellites in solution with only L1 communication to maintain running AutoTrac. Optimize Shading is only available with SF1 and SF2 on iTC receivers, and will not function with RTK or Gen 2 receivers. When using RTK, the Optimize Shading checkbox is still displayed, but it has no affect on the receiver. Optimize Shading can be used with both Original and GS3 displays.

- **Q:** Does Optimize Shading Affect AutoTrac Accuracy?

  A: Although Optimize Shading allows the user to continue using AutoTrac, it is operating on a degraded signal level and the operator can expect the system to be less accurate. Line jumps and shifts may be more prevalent. Optimize Shading does not affect GPS accuracy when all of the L1 and L2 frequencies are available to the receiver. It merely allows AutoTrac to stay activated when GPS signal is degraded. If the receiver has full signal, Optimize Shading does not affect accuracy.

- **Q:** Should I Leave Optimize Shading on All the Time?

  A: Under most circumstances, Optimize Shading should be turned off. It should only be used in situations where the operator would like to continue running AutoTrac if a reduction in signal quality is expected and optimum AutoTrac accuracy is crucial. Optimize Shading should be turned off if during a critical operation whereby it would be preferable for AutoTrac to deactivate during signal degradation than to continue running AutoTrac with reduced accuracy.

Continued on next page

- **Q:** Does Optimize Shading Affect Documentation, Coverage Mapping or Swath Control?

  A: Having Optimize Shading checked will have no effect on Documentation, Coverage or Swath Control if degraded signal due to shading is encountered. Documentation, Coverage and Swath Control require a minimum of only 3D/ RTG to operate.

- **Q:** Can I run over my previously recorded adaptive curve lines?

  A: Yes, with a feature within adaptive curves called Repeat Mode which allows you to repeat over previously recorded adaptive curve lines. This is located by going to GS3 Pro, Guidance (B), Guidance Settings Tab, and selecting the Change button (next to the label Curve Track Settings). In here, there will a check box to turn on Repeat Mode.

- **Q:** How do I remove unused iTEC Pro sequences?

  A: Sequences are stored in the internal memory and cannot be deleted. Individual sequences cannot be removed, but sequences can have the functions edited or removed.

  NOTE: If contents of the display are deleted, iTEC sequences will also be deleted.

- **Q:** What if I make a mistake naming an iTEC sequence, or don't have my sequences properly named?

  A: Currently we cannot edit the names of sequences after they have been accepted. If you make a mistake in renaming the sequence, (e.g 1770 Exterior Raise vs. 1770 Extrior Raise), there are a few options:

  a. Continue to setup the sequence, ignoring the error.
  b. Create a new sequence with the correct name.
  c. Start over with a blank USB drive. In this instance, it will be necessary to get all desired setup data from at least Apex version 2.6 back on the USB drive.

- **Q:** With multiple iTEC Pro sequences, how should I keep these organized?

  A: It is important to properly name the sequences. "Raise" and "lower" will likely be different for the interior passable and headland boundaries, as well as for different implements and tasks.

- **Q:** Why does my AutoTrac Universal (ATU) deactivate for no apparent reason?

  A: When the ATU deactivates, a Stop Code is generated and indicates why AutoTrac deactivated. On an Original GreenStar Display, you will find the Stop Code by going to INFO > AUTOTRAC. On a GS3, the stop code will be displayed in the top left corner of the GS3 Pro Guidance Screen or in GS3 Pro AutoTrac Universal Diagnostics. Explanation of the stop code can be found in ATU Quick Reference Guide.

CZ76372,00002FA -19-28APR11-3/3

Reprogramming Error Codes

Error Number	Meaning	What to Do
8	Directory creation error	Reprogramming could not create a directory on the internal file system. User should try again, but the session may fail again.
12	Missing update file	Check that all update files have been correctly saved to the USB flash drive (all files listed in ManifestFile.sdm should be on the drive in their proper path).
14	File read error	Reprogramming was not able to read one of the update files. Check for file corruption when the files were saved to the drive.
16	File write error	Reprogramming was not able to write one of the update files to internal flash. File system cleanup problem, reboot the display and try again.
37	Invalid file handle	Reprogramming received a file handle that was not valid, check validity of USB drive to make sure it matches the original image.
44	Checksum failed	Reprogramming calculated a checksum that did not match the expected checksum. Check that all files match the original image.
45	Controller file invalid	Reprogramming parsed a file for a PF controller that was invalid. Check that all files match the original image.
47	Incompatible hardware	Customer is using an incorrect hardware revision version as the reprogramming image for the display. Make sure you have the correct image for the display hardware.
48	Update file invalid	The reprogramming ManifestFile.sdm file has been corrupted. Make sure the file matches the original image.
51	User aborted	User removed the USB flash drive during a reprogramming session. Repeat the reprogramming process with the drive inserted the entire session.
55	Controller flash erase failed	A PF controller could not erase its flash memory.
56	Message missing colon	A PF controller received a record that was missing a colon. Customer could try reprogramming the controller again in case of a bus error.
57	Record too long	A PF controller received a record that was too long. Customer could try reprogramming the controller again in case of a bus error.
58	Invalid record length	A PF controller received a record that was not the expected length. Customer could try reprogramming the controller again in case of a bus error.
59	Sequence error	A PF controller received a record that was out of the expected sequence. Customer could try reprogramming the controller again in case of a bus error.
60	Controller received odd address	A PF controller received a record that had an invalid address. Customer could try reprogramming the controller again in case of a bus error.
61	Controller timed out	A PF controller stopped responding to the display during a reprogramming session. Check connection to the controller, may require a power cycle. If communication is resumed, repeat the reprogramming session.
62	NOR flash reprogramming problem	There was an error with trying to reprogram the NOR flash boot application image.
63	Unknown controller response	A PF controller returned a response that the display did not know how to interpret.
81	Reprogramming session failed	Generic notification that some part of the reprogramming session failed. Another error will be reported in addition to this one to indicate the specific failure mode.

This table contains the error codes that GS3 reprogramming software could report if a reprogramming session fails. In the case of an error, reprogramming will post an alarm indicating the failure, and an error code, and text of the problem will be placed in the message center.

CZ76372,00001B6 -19-04OCT10-1/1

Alarm Screens

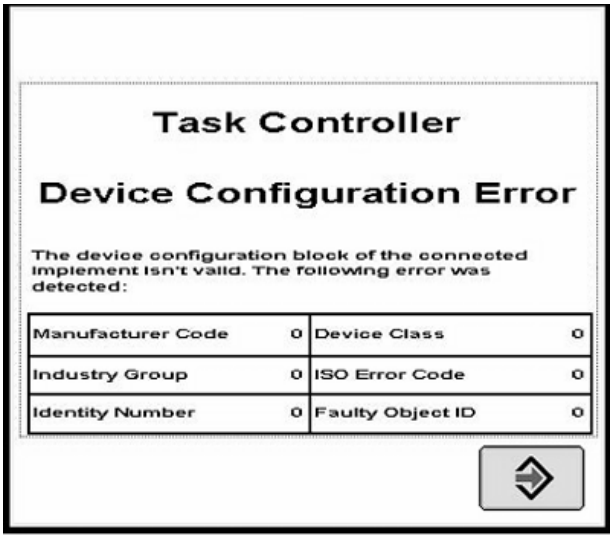
SPN.FMI	Applicable Failure Mode	Recommended Solutions
158.3	VTI Switched Supply Voltage Too High	The voltage level of the switched power is greater than the nominal. Turn off the ignition key, then turn it back on. If this diagnostic code shows up again, check power supply wiring. Please contact your John Deere dealer.
158.4	VTI Switched Supply Voltage Too Low	The switched power voltage is below the nominal. Turn off the ignition key and turn it back on. If this diagnostic code shows up again, check the battery. Please contact your John Deere dealer.
168.3	Unswitched Supply Voltage Too High	The voltage level of from the battery power supply is greater than the nominal. Cycle power on the display. If this diagnostic code shows up again, check wiring. Please contact your John Deere dealer.
168.4	Unswitched Supply Voltage Too Low	The voltage level from the battery is lower than the nominal. Cycle power on the display. If this diagnostic code shows up again, check battery power and recharge it as needed. Please contact your John Deere dealer.
1386	Display Unit Temperature Too High	The LCD backlight was not turned off when the temperature was above the highest limit. Please contact your John Deere dealer.
1386.1	Display Unit Temperature Too Low	The LCD backlight was not turned off when the unit temperature was below the lowest limit. Contact you John Deere Dealer.
3597.2	Regulate Voltage 5.0 v Abnormal	The 5.0 v regulated power is out of range. Click Cancel if it occurs occasionally. If it occurs continually, contact your John Deere Dealer.
3598.2	Regulated Voltage 1.5 v Abnormal	The 1.5 v regulated power is out of range. Click Cancel if it occurs occasionally. If it occurs continually, contact your John Deere Dealer.
3599.2	Regulated Voltage 3.3 v Abnormal	The 3.3 v regulated power is out of range. Click Cancel if it occurs occasionally. If it occurs continually, contact your John Deere Dealer.
523310.12	Non-Volatile Memory Read/Write Failure	Failed to read/write from/to the NOR flash. See your John Deere dealer.
523771.3	CCD+ Line Voltage Too High	The voltage on the CCD_HIGH line of the CCD network is above the nominal. Cycle power on the display. If this diagnostic code shows up again, check the harness wiring.
523771.3	CCD+ Line Voltage Too Low	The voltage level on the CCD_HIGH line of the CCD network is below the nominal. Cycle power on the display. If this diagnostic code shows up again, check the battery and harness wiring.
523772.4	CCD- Line Voltage Too High	The voltage on the CCD_Low line of the CCD network is above the nominal. Cycle power on the display. If this diagnostic code shows up again, check the harness wiring.
523772.4	CCD- Line Voltage Too Low	The voltage level on the CCD_Low line of the CCD network is below the nominal. Cycle power on the display. If this diagnostic code shows up again, check the battery and harness wiring.
523773.3	Vehicle CAN+ Line Voltage Too High	The voltage on the CAN_HIGH line of the Vehicle Bus (Tractor Bus) is above the nominal. Cycle power on the display. If this diagnostic code shows up again, check the harness wiring.
523773.4	Vehicle CAN+ Line Voltage Too Low	The voltage level on the CAN_HIGH line of the Vehicle CAN Bus (Tractor CAN Bus) is below the nominal. Cycle power on the display. If this diagnostic code shows up again, check the battery and harness wiring.
523774.3	Vehicle CAN- Line Voltage Too High	The voltage on the CAN_LOW line of the Vehicle Bus (Tractor Bus) is above the nominal. Cycle power on the display. If this diagnostic code shows up again, check the wiring.
523774.4	Vehicle CAN- Line Voltage Too Low	The voltage level on the CAN_LOW line of the Vehicle CAN Bus (Tractor CAN Bus) is below the nominal. Cycle power on the display. If this diagnostic code shows up again, check the battery and harness wiring.
524050.12	Real Time Clock Malfunction	Real Time Clock malfunctioned. It may be caused by the damage on the RTC chip or no power applied to the chip.
524215.3	Implement CAN+ Line Voltage Too High	The voltage on the CAN_HIGH line of the Implement Bus is above the nominal. Cycle power on the display. If this diagnostic code shows up again, check the harness wiring.
524215.4	Implement CAN+ Line Voltage Too Low	The voltage on the CAN_HIGH line of the Implement Bus is below 0.5 v Cycle power on the display. If this diagnostic code shows up again, check the battery power and recharge the battery as needed.
524217.3	Implement CAN+ Line Voltage Too High	The voltage on the CAN_HIGH line of the Implement Bus is above nominal. Cycle power on the display. If this diagnostic code shows up again, check wiring.
524217.4	Implement CAN+ Line Voltage Too Low	The voltage on the CAN_LOW line of the Implement Bus is below the nominal. Cycle power on the display. If this diagnostic code shows up again, check the battery power and recharge the battery as needed.

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Task Controller Alarms

Alarm, Task Controller, Device Configuration Error, The device configuration block of the connected implement isn't valid. The following error was detected: Manufacturer Code:, Industry Group:, Identity Number:, Device Class:, ISO Error Code:, Faulty Object ID:

This alarm screen will be displayed whenever an error in the received Device Configuration Description of the ISO implement was detected. Please contact your John Deere Dealer or the manufacturer of the implement.


Task Controller
Device Configuration Error
The device configuration block of the connected implement isn't valid. The following error was detected:
Manufacturer Code 0
Device Class 0
Industry Group 0
ISO Error Code 0
Identity Number 0
Faulty Object ID 0

PC9745 —UN—24SEP09

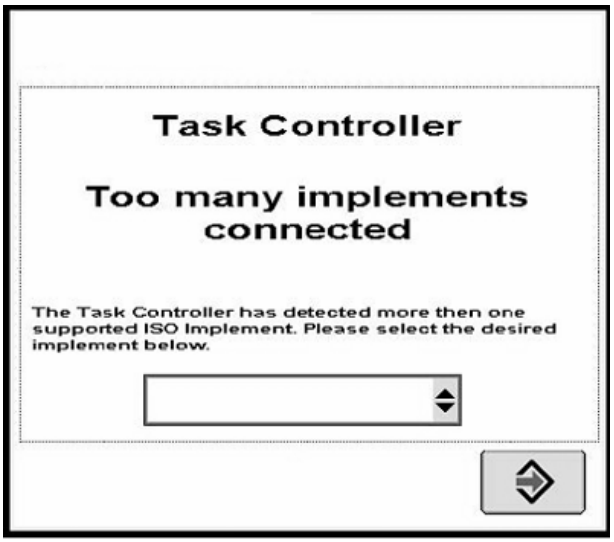
Device Configuration Error

CZ76372,00002B6 -19-30MAR11-1/6

Alarm, Task Controller, Too Many Implements Connected, The Task Controller has detected more than one supported ISO implements. Please select the desired implement below.

This alarm screen will be displayed whenever the ISO Task Controller unit detects more then one compatible ISO implement on the ISOBUS. The pull down list will contain all found ISO implements which can be used for documentation purposes. Each ISO Implement is listed in the following format: 10 chars of manufacturer name + 10 chars of the implement type + ISO network address in the hex format.

Example: John Deere Sprayer with ISO Network Address 0x81: John Deere-Sprayer-81x


Task Controller
Too many implements connected
The Task Controller has detected more then one supported ISO Implement. Please select the desired implement below.

PC9746 —UN—24SEP09

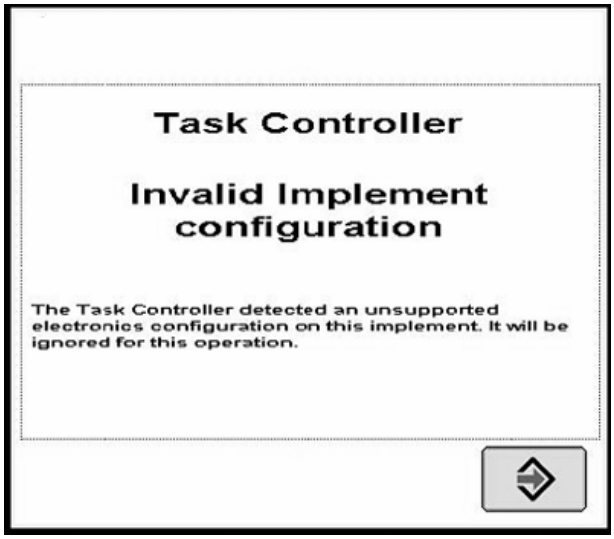
Too Many Implements Connected

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CZ76372,00002B6 -19-30MAR11-2/6

Alarm, Task Controller, Invalid Implement Configuration, The task controller detected an unsupported electronics configuration on this implement. It will be ignored for this operation.

This alarm screen will be displayed whenever an ISO implement is detected, which has member controllers. The John Deere Task controller does only support ISO implements with a master controller and no member controllers.


Task Controller
Invalid Implement configuration
The Task Controller detected an unsupported electronics configuration on this implement. It will be ignored for this operation.

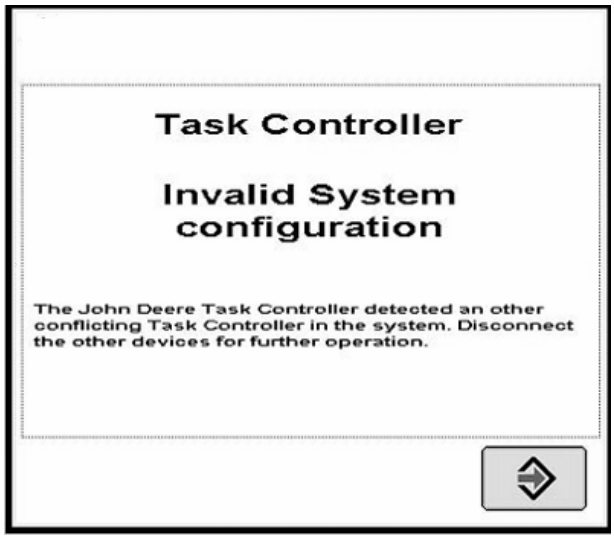
PC9747 —UN—24SEP09

Invalid Implement Configuration

CZ76372,00002B6 -19-30MAR11-3/6

Alarm, Task Controller, Invalid System Configuration, The John Deere task controller detected an other conflicting task controller in the system. Disconnect the other device for further operation.

This alarm screen will be displayed whenever another ISO Task Controller is found on the ISOBUS. Disconnecting of the other Task Controllers is required because an ISO implement can only work with one Task Controller, which is in most cases the first one. When this alarm screen is displayed the John Deere Task Controller is not the first one, and cannot use the ISO implements for documentation purposes.


Task Controller
Invalid System configuration
The John Deere Task Controller detected an other conflicting Task Controller in the system. Disconnect the other devices for further operation.

PC9748 —UN—24SEP09

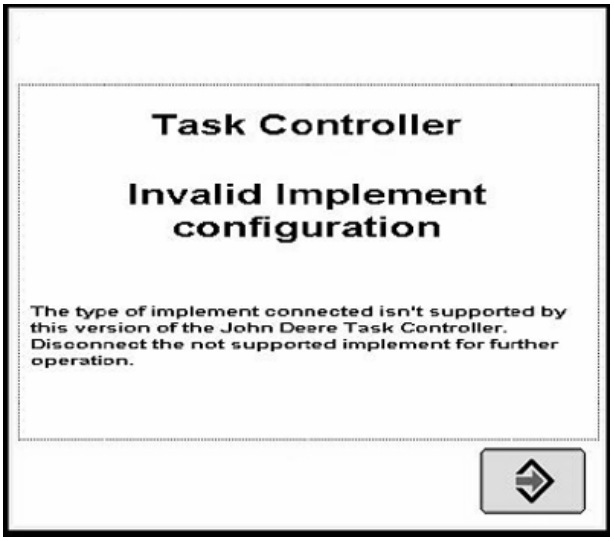
Invalid System Configuration

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CZ76372,00002B6 -19-30MAR11-4/6

Alarm, Task Controller, Invalid Implement Configuration, The type of implement connected isn't supported by this version of the John Deere task controller. Disconnect the not supported implement for further operation.

This alarm screen will be displayed whenever an ISO implement is detected which is not supported by the John Deere Task Controller. All non-supported ISO implements are ignored by the John Deere Task Controller and cannot be used for documentation purposes.


Task Controller
Invalid Implement configuration
The type of implement connected isn't supported by this version of the John Deere Task Controller. Disconnect the not supported implement for further operation.

PC9749 —UN—24SEP09

Invalid Implement Configuration

CZ76372,00002B6 -19-30MAR11-5/6

Task Controller, Configuration of the connected implement not compatible, The configuration of the connected implement isn't compatible for the documentation purposes, because the following information isn't available:

This alarm screen will be displayed whenever an implement is detected which is not compatible with Field Doc, because some information is missing from the ISO implement which is required for automatically setup of Field Doc for documentation purposes. The missed information is displayed in the message box of the alarm screen. Please contact your John Deere Dealer or the manufacturer of the implement.


Task Controller
Configuration of connected Implement not compatible
The configuration of the connected implement isn't compatible for documentation purposes, because the following information aren't available:
Undefined error

PC9750 —UN—24SEP09

Configuration of Connected Implement Not Compatible

CZ76372,00002B6 -19-30MAR11-6/6

Diagnostic Addresses

MESSAGE CENTER button > DIAGNOSTIC ADDRESSES button > DEVICE drop down box > “VT;.001 Implement”

PC8655 —UN—05AUG05



MESSAGE CENTER button

PC8668 —UN—05AUG05



DIAGNOSTIC ADDRESSES button

Address Number	Address Name
000	Initial Address
001	Recall Diagnostic Trouble Code (DTCs)
002	System Beep 1
003	System Beep 2
008	Unswitched Power Supply Voltage
009	Switched Power Supply Voltage
010	Unit Internal Temperature
011	Vehicle CAN - Bus Status
012	Vehicle CAN - CAN HIGH Voltage
013	Vehicle CAN - CAN LOW Voltage
015	Implement CAN - Bus Status
016	Implement CAN - CAN HIGH Voltage
017	Implement CAN - CAN LOW Voltage
018	Flash Wear Count
019	Hours of Operation
023	Radar Input Status
024	Implement Switch Status
028	CCD Bus - Bus Status
029	CCD Bus - Positive Voltage
030	CCD Bus - Negative Voltage
031	Bezel Key Status
032	Real Time Clock (RTC)
033	Maximum Sleep Time
034	Boot Hold Switch
035	USB Flash Drive Status
036	Max Warm Boots Allowed
038	Synchronize Brightness
039	Daytime Luminance
040	Daytime Luminance Balance Ratio
041	Nighttime Luminance
042	Nighttime Luminance Balance Ratio
043	Internal Speaker Volume
045	Settings - Country Code

Continued on next page

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Address Number	Address Name
046	Settings - Language Code
047	Settings - Numeric Format
048	Settings - Date Format
049	Settings - Time Format
050	Settings - Units of Distance
051	Settings - Units of Area
052	Settings - Units of Volume
053	Settings - Units of Mass
054	Settings - Units of Temperature
055	Settings - Units of Pressure
056	Settings - Units of Force
057	Settings - GPS Time Sync
058	Settings - Current Date
059	Settings - Current Time
060	Radar Calibration Constant
061	UIM Accept Global Messages
062	Access Manager Password
72	Configurable Vehicle Bus Function Instance
227	Boot Block Program Part Number (Software)
228	Boot Block Program Version Number (Software)
231	Board Service Package Part Number (Software)
232	Board Service Package Version Number (Software)
233	Platform Virtual Terminal Part Number (Software)
234	Platform Virtual Terminal Version Number (Software)
235	Device Part Number (Hardware)
236	Device Serial Number (Hardware)
237	Software Assembly Part Number
238	Software Assembly Version Number

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Diagnostic Trouble Codes

DTC Name	DTC Description
158.03—VTI Switched Supply Voltage High	The voltage level of the switched power is greater than 32.0V.
158.04—VTI Switched Supply Voltage Low	The voltage level of the switched power is less than 8.5V.
168.03—VTI Unswitched Supply Voltage High	The voltage level of the unswitched power supply is greater than 32.0V.
168.04—VTI Unswitched Supply Voltage Low	The voltage level of the unswitched power supply is less than 8.5v.
609.12—CAN Micro communications failure	Permanent channel down condition detected on SPI comm lines
442.00—Display Unit Temperature High	The unit temperature read from the internal analog digital convertor is greater than 80° C, at which the LCD backlight shall be turned off.
442.01—Display Unit Temperature Low	The unit temperature read from the internal analog digital convertor is less than -30° C, at which the LCD backlight shall be turned off.
523310.12—NOR Flash Memory Read/Write Failure	Possible sources of this error: 1) The Manufacturing Info Block in NOR flash has an invalid CRC and thus cannot be read. 2) The Manufacturing Info Block in NOR flash could not be written to successfully. Currently, only the Current Vehicle Model / Serial Number number fields can be modified by the user (through the VTi OBD interface).
523771.03—CCD High Line Voltage High	The voltage level on the CCD+ line of the CCD Bus is greater than 3.2V.
523771.04—CCD High Line Voltage Low	The voltage level on the CCD+ line of the CCD Bus is less than 1.4V. (If both the CCD+ and CCD- lines are reporting less than 0.5V, it is assumed the CCD bus is not in use on this vehicle and this DTC will be disabled)
523772.03—CCD Low Line Voltage High	The voltage level on the CCD- line of the CCD Bus is greater than 3.2V.
523772.04—CCD Low Line Voltage Low	The voltage level on the CCD- line of the CCD Bus is less than 1.4V. (If both the CCD+ and CCD- lines are reporting less than 0.5V, it is assumed the CCD bus is not in use on this vehicle and this DTC will be disabled)
524050.12—Real Time Clock (RTC)	Communications channel failure with RTC or power to RTC is lost.

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Trouble Code Pop-Up Boxes—Platform Core Software

FAULT CONDITION FAULT DESCRIPTION	ALARM TEXT
CAN bus inbound communications overload.	CAN bus communications overload. Reset the display or turn the power off and then back on.
When an implement's object pool is rejected by the VT	There is a technical problem preventing proper operation of the display with the following implement. Please contact implement manufacturer with this information:
A valid USB drive is inserted that contains bad setup data.	The setup data on the USB drive is invalid. Please resave the setup data to the drive from your computer.
A valid USB drive is inserted that contains bad setup data that cannot be read by this version of the display software.	The setup data on the USB drive cannot be read by the display. Please update your display software.
A USB drive is inserted that cannot be used by the display	The USB drive is not compatible with the display. Please use a different drive.
If the user is in the middle of setting up a new operation and they switch to the homepage, the apps on the homepage would be disabled in that case. Similarly, if the user was changing the status of a job, the apps on the homepage would be disabled. In both of these cases there is no error	There is an alarm or pop-up within the GreenStar 3 application that requires your attention.
Memory 90% Full	Clear maps or export data to USB drive and then delete Documentation data.
Memory Full	Clear maps or export data to USB drive and then delete Documentation data.
VI Implement is removed	Communication lost with ISO implement. If implement was not disconnected, check connections and cycle power.
Internal Memory Full--From VI Object Pools	Internal memory dedicated to ISO implements is full. Remove implements to free memory space.
Internal Memory Full-From Documentation and Curved Track data	Internal memory is full.
New software found for display	New software found for display. (This alarm will re-appear at every power cycle or if USB drive is re-inserted.)
The following VI(s) are no longer communicating with the display. Check the indicated device(s) and CAN bus wiring.	Some device(s) are no longer communicating with the display. Check the CAN Bus wiring.
CAN bus inbound communications overload.	CAN Bus communications overload. Reset the display or turn the power off and then back on.
A failure has been detected in the display's internal memory. (Reprogramming)	An error occurred during reprogramming. Perform reprogramming process again. If problem reoccurs contact your John Deere dealer.
Legacy device reprogramming error. Device not reporting version info	An error occurred during reprogramming. Perform reprogramming process again. If problem reoccurs contact your John Deere dealer.
Legacy device not found while programming product	Device not found while programming product. Check wiring and connectors.
Attempt to copy the setup data to a "new" USB drive that already has setup data on it	Prior setup data found on USB drive. Select CONTINUE button to overwrite this data. Select CANCEL button to abort the operation. (If the user decides to continue, there will be a second popup)"Are you sure you want to overwrite?"
Wrong activation code	Invalid activation code. Please reenter activation code.
Customer attempts to record boundary when one already exists	Are you sure you want to redefine the boundary?
All New/Edit Screens: User attempts to create a duplicate name in any of the New/Edit screens	This entry is already being used. Please select a new entry or cancel to modify the entry.
This alarm will be shown after we have received a touch event for 60 seconds.	The touchscreen is malfunctioning. Try to reboot the device, utilize an external display control, or the bezel keys on the backside of this display for screen response. If problem persists, please contact your John Deere Dealer.
This alarm will be shown after we have received a touch event for 60 seconds.	A button is malfunctioning. Try to reboot the display. If the problem persists, please contact your John Deere Dealer.
GPS Alarms For GreenStar Basic/Deluxe	
200 GPS communications failure	No communication with GPS receiver. Check connections at GPS receiver.
No GPS. Tracking Disabled	No GPS position available. Verify GPS receiver has clear view of sky.
No Diff. Tracking Disabled.	No GPS differential correction available. Verify GPS receiver has clear view of sky.
2D GPS in use.	2D GPS in use. Verify GPS receiver has clear view of sky.

Continued on next page

FAULT CONDITION FAULT DESCRIPTION	ALARM TEXT
Tracking Inaccurate The GPS receiver must be set to report at the 5Hz. Rate. Confirm settings on receiver.	The GPS receiver must be set to report at the 5Hz message output rate. Confirm settings on GPS receiver and change output to 5Hz. (For 3rd-Party Controllers) *NOTE: 3rd-Party controllers are controllers using RS232 connection (Field Doc Connect) and ISOBUS compliant controllers supporting Task Controller functionality.*
Language Loading Errors:	
CRC bad, missing a colon, bad prep header, etc.	Language load detected corrupt file. Reload software to USB drive.
Hardware compat. version mismatch.	Invalid hardware for language file. Reload software to USB drive.
Software version mismatch.	Language file incompatible with application. Reload software to USB drive.
Timeout waiting for CAN62 Response To Request	Device failed to start programming language. Reload software to USB drive.
Target sent FAIL in CAN62 Response To Request	Device failed to continue programming language. Reload software to USB drive.
Timeout waiting for CAN62 Response To Checksum	Device failed to report a language checksum. Reload software to USB drive.
Target sent FAIL in CAN62 Response To Checksum	Device reported an invalid language checksum. Reload software to USB drive.
Timeout waiting for CAN62 Response To Remove	Device didn't respond to the request to remove language. Reload software to USB drive.
Target sent FAIL in CAN62 Response To Remove	Device failed to remove a language. Reload software to USB drive.
Flash Write Failure.	Device failed while writing language to memory. Reload software to USB drive.
Timeout waiting for CAN62 Response To New Data	Device stopped programming language prematurely. Reload software to USB drive.
Product ID mismatch	Language is incompatible with loaded product. Reload software to USB drive.

Platform Core Software

CZ76372,0000296 -19-12JAN11-2/2

Trouble Code Pop-Up Boxes—Documentation Software

FAULT CONDITION FAULT DESCRIPTION	ALARM TEXT
Task selected, recording is on, the operation mandatory details are not defined.	No operation details defined. Go to GreenStar setup and enter operation info.
Invalid prescription	Prescription file is invalid. -Verify rate units on prescription are correct.
Totals: Client Undefined	Alarm issued stating that the user must select a Client to view totals.
Totals: Client and Farm defined, Field undefined.	Alarm issued stating that the user must select a Field to view Field, Task, or Load Totals.
Totals: CFF, Task, and Operation defined, Crop/Product Type undefined.	No Alarm. Operation defaulted to “” and Task Totals are listed.
Totals: CFF and Crop/Product Type defined, Task and/or Operation undefined.	Alarm issued stating that the user must select a Task and Operation to view Field or Load Totals.
Totals: Client, Crop and Task defined, Farm and Field undefined.	No Alarm. Task and Operation defaulted to “” and Crop Totals are listed.
Reset totals to zero	Are you sure you want to zero the totals listed below?
In order to record a product application, you must choose a product type and product name on one of the ADD PRODUCT boxes. Choices will be CHANGE, which takes the user to the product summary screen, or REMOVE OPERATION which will flash up the "Are you sure you want to delete this operation" message.	In order to record a product application, you must choose a product type and product name on one of the Add Product boxes.
When no products are specified in an application	No products are specified, please select a product.
An alarm shall be issued if there is a prescription selected in Field Doc but not selected in the planter/sprayer setup.	Prescription available but not selected. Go to implement setup to select the prescription as the rate.
An alarm will be issued if Field Doc has a prescription selected, but the planter/sprayer is outside the field boundary for the prescription. "Default Rx Rate Used.	Machine outside the field boundary for the prescription. Default Prescription rate being used.
At power-up, An alarm will be issued if a prescription is being used and the prescription multiplier for an operation is not set to 100%.	Prescription Multiplier not 100%.
Implement width set to zero.	Implement width is set to zero. Implement width is required to record data.
Anywhere: User selects the DOCUMENTATION button before filling out CFFT	You must choose a Client, Farm, Field, Task from the Resources button
Communication lost with a connected controller.	Communication lost with controller. If controller was not disconnected, check connections and cycle power. If controller was disconnected please review operations selected.
Field Doc didn’t get some periodic messages	Communication lost with controller. If controller was not disconnected, check connections and cycle power. If controller was disconnected please review operations selected.
	Prescription available but not selected. Check setup on the implement to ensure prescription is selected as the rate.
Air Cart Setup: Air cart is on the bus, 1st tank has been defined with an operation, Second tank is created with the same operation type as the first tank.	You are creating another seeding (application) operation. Would you like this to be the same as the Front (Middle)(Rear) Tank seeding (application) operation?
Air Cart Setup: User selects enter for the previous message	Please enter the tank ratios for each tank. (if applicable)
Air Cart Setup: User enters tank ratios that do not add to 100	Tank ratios must add to 100
SeedStar selects Rx but Documentation doesn’t have Rx selected.	No prescription file for selected field. -Verify field and operation are correct. -Verify prescription was saved on USB drive. -Resave prescription to drive if necessary.
Tank Mix Screen: User attempts to add a second ingredient in a tank mix without a carrier or base solution rate	You must enter a carrier and base solution rate before building a tank mix
Incorrect model is possibly selected	The RS232 controller model selected is incorrect. Please verify and reenter manufacturer and model number.
Recording is not currently allowed	Recording is not currently allowed. Verify settings on RS232 controller.
Alarm for manual controller when target rate changes	Target rate has changed. Alarm for manual controller.
Alarm when Raven is communicating everything but an actual rate	Raven controller not communicating actual rate. Verify Raven controller settings and connections to the display.
Special handling will be needed for each controller to monitor the health of the connection	Communication problem with controller. Check connections to controller.

CZ76372,00001B8 -19-04OCT10-1/1

GreenStar Diagnostics

Required Items for Documentation

The following items are required for documentation to function:

- Client, Farm and Field
- Task
- Operation
- Operation Details
- Product Type/Name
- Target Rate/Rate Units
- Recording Source
- Implement Width/Offsets
- Controller Setup (when using 3rd-Party controllers)

NOTE: 3rd-Party controllers are controllers using RS232 connection (Field Doc Connect) and ISOBUS compliant controllers supporting Task Controller functionality.

Required Items for Guidance

The following items are required for guidance to function:

- Tracking mode set to Straight Track, Curve Track, Circle Track (only available with optional PivotPro module) or Row Finder
- Track spacing (See equipment section of GreenStar Basics/Pro General Setup)
- Track 0 (Except for Curve Track and Row Finder)
- GPS signal (StarFire signal required)

CZ76372,0000144 -19-26AUG10-1/1

Repeat Mode

Repeat mode defaulting off if curves are not present in field.

1. Repeat Mode ON
   a. Manual Record—Alert
      - Yes—Turn repeat mode off; begin recording.
      - No—Don't suppress subsequent alerts.

   b. Recording tied to AutoTrac—Alert
      - Yes—Turn repeat mode off; begin recording.
      - No—Suppress subsequent alerts until power cycle (cold or warm boot) or enter a new field.

   c. Recording tied to Documentation—Alert
      - Yes—Turn repeat mode off; begin recording.
      - No—Suppress subsequent alerts until power cycle (cold or warm boot) or enter a new field.

   d. Check field selection has changed
      - Yes—Check that there are curve segments in this field.
        - Yes—No Action.
        - No—Default Repeat Off; no alert.
2. Repeat Mode OFF—Check field selection has changed.
   a. Yes/Correct—Check that curve segments.
      - Yes—Alert
      - No—No Action

   b. No—No Action.

NS43404,0000161 -19-20JUL10-1/1

Guidance Alarms

Message	Description
SSU Communication Error	No communication with vehicle steering controller (SSU). Check vehicle for diagnostic codes and contact your John Deere Dealer.
Turn Predictor Turned On	Turn predictor is turned ON. Use the check box to turn it OFF
AutoTrac Deactivated	AutoTrac system deactivates when operator is out of seat for more than 5 seconds
AutoTrac	The operator is responsible for collision avoidance. Turn AutoTrac OFF before entering roadways.
No Setup Data!	Please import a new data Profile. Export data to a USB drive first if you want to keep old data.
AutoTrac SSU Software Incompatible	See your John Deere Dealer for SSU update.
Communication Error	Communication problem with controller. Check connections to controller.
Mobile Processor Detected	Mobile Processor Detected on CAN Bus. GreenStar Application is disabled. Remove mobile processor and cycle power to enable GreenStar application.
GPS Communication Problem	No communication with GPS receiver. Check connections at GPS receiver.
Tracking Inaccurate	The GPS receiver must be set to report at the 5Hz message output rate. Confirm settings on GPS receiver and change output to 5Hz,
Invalid Boundary	An invalid boundary has been recorded. You may continue recording or clear the current boundary and start recording again.
Activation Error	Invalid activation code. Please reenter activation code.
Invalid Filter	All the fields that are required to be filled out based on the Totals Type Selected have not been filled out.
Flags of Same Selection	Selected the Flags of same name and mode.
Name Already Exists	The name you have entered already exists in this list. Please enter a new name.
GPS Communication Problem	No communication with GPS receiver. Check connection at GPS receiver and perform operation again.
Curve Track Memory Full	Internal memory available for Curve Track is full. Data must be cleared to continue Curve Track Operation. Clear curved track data from system
AutoTrac Disabled	AutoTrac SF1 license cannot operate with current StarFire software. Update StarFire software to operate AutoTrac.
AutoTrac Disabled	AutoTrac SF1 license cannot operate while SF2 corrections are turned on. Turn SF2 corrections off to operate AutoTrac.
License Problem	No license available for the selected tracking mode. Previous tracking mode will be selected.
Duplicate Name	Name already exists. Select another name.
Curve Track Recording	Curve Track recording in progress. Cannot perform operation until recording is turned off.
Circle Definition Problem	There was an internal error during Circle definition. Redefine the circle.
Circle Definition Problem	Communication with GPS receiver was lost during circle definition. Redefine the circle once communication has been re-established.
Circle Definition Problem	Center point is too far. Select another center point.
A-B Line Definition Problem	There was an internal error during A-B line definition. Redefine the A-B line.
A-B Line Definition Problem	A timeout occurred during A-B line definition. Redefine the A-B line.
A-B Line Definition Problem	A and B points of the A-B line are too close. Perform operation again.
Loss of GPS While Recording Boundary	GPS has been lost while recording the boundary. Point logging will resume when the GPS signal returns. This may result in an inaccurate boundary.
Memory Full	Clear maps or export data to USB drive and then delete Documentation data.
Memory 90% Full	Clear maps or export data to USB drive and then delete Documentation data.
No Memory	No Memory available for Curve Track. Clear maps or export data to USB drive and then delete Documentation data.
Low Memory	Low Memory available for Curve Track. Clear maps or export data to USB drive and then delete Documentation data.
No Memory	No Memory available for Straight Track. Clear maps or export data to USB drive and then delete Documentation data.
No Memory	No Memory available for Circle Track. Clear maps or export data to USB drive and then delete Documentation data.
Circle Definition Problem	The distance from the vehicle to the center point is greater than 1 mile. Select another center point or drive another circle.
Zero All Totals	You have decided to zero all totals for the selected filter.
Incorrect RS232 Controller Model Selected	The RS232 controller model selected is incorrect. Please verify and reenter manufacturer and model number.
Prescription Error	Controller is not setup to accept prescriptions.

Continued on next page

Message	Description
Prescription Error	Controller is setup to accept prescriptions. No controller prescription has been selected.
Prescription Error	Prescription rate is out of controller range.
Controller Unit of Measure Error	Controller will only operate when using metric units.
Controller Unit of Measure Error	Controller will only operate when using English (US) units.
Controller Unit of Measure Error	Controller will only operate when using metric or English (US) units.
Controller Operation Error	Invalid operation selected for controller.
Prescription Warning	Out of field prescription rate is now being applied.
Prescription Warning	Loss of GPS signal has occurred. Loss of GPS prescription rate is now being applied.
Prescription Warning	Controller does not support selected prescription.

Alarms

CZ76372,00001B9 -19-04OCT10-2/2

Trouble Code Pop-Up Boxes—Guidance Software

FAULT CONDITION FAULT DESCRIPTION	ALARM TEXT
Issued once (at power up) the first time an SSU is detected, when an AutoTrac key is activated. (Any guidance mode with AutoTrac key and AT capable SSU.)	The operator is responsible for collision avoidance. Turn AutoTrac OFF before entering roadways.
Loss of SSU Communication for more than 1 second	No communication with vehicle steering controller (SSU). Check vehicle for diagnostic codes and contact your John Deere Dealer.
Within 5 seconds away of a gap in Curved Track data	Gap in Guidance Path
Within 5 seconds away from a curve of more than 30° between consecutive segments	Approaching Sharp Curve
The operator leaves the seat for more than 7 seconds while in a tracking mode that supports Turn Predictor and TP is off (valid SSU, AT licence, and seat switch	Turn predictor is turned ON. Uncheck the box to turn it OFF.
SF1 AT Key with SF2 corrections turned on.	AutoTrac SF1 license cannot operate while SF2 corrections are turned on. Turn SF2 corrections off to operate AutoTrac.
SF1 AT Key with old SF1 StarFire software.	AutoTrac SF1 license cannot operate with current StarFire software. Update StarFire software to operate AutoTrac.
The user attempts to switch to a tracking mode for which there is no valid license available.	No License available for the selected tracking mode. Defaulting to previous tracking mode.
The user attempts to perform an operation that requires a GPS signal (presses SetA, SetB, Curve Track recording, or Circle Track recording buttons).	No communication with GPS receiver. Check connection at GPS receiver and perform operation again.
The GPS signal is lost during definition of a circle using the driving method.	Communication with GPS receiver was lost during circle definition. Redefine the circle once GPS communication has been re-established.
The user inputs an A or B point that is too close to the other while defining an AB Line (can occur using A+B and Lat/Long methods).	A and B points of the AB Line are too close. Must have 10 m (30 ft) between point A and B. Perform operation again.
The user defines a circle with the center point at a distance greater than 1 mile from the vehicle location. This alarm can also occur if the user selects a circle with a center point that is far away.	The distance from the vehicle to the center point is greater than 1 mile. Select another center point or drive another circle.
A timeout (user has not reached the minimum AutoB distance within 45 sec) occurs during AB Line definition using the AutoB method.	A timeout occurred during AB Line definition. Redefine the AB Line.
The user attempts to change the tracking mode while recording in Curve Track.	Curve Track recording in progress. Cannot perform operation until Curve Track recording is turned off.
Press clear all shifts button	Clearing all shifts will restore original guidance track locations for the current field. Are you sure you want to proceed?
Incompatible AutoTrac SSU Software. AutoTrac Deactivated (SSU exit code)	AutoTrac has detected an compatible SSU(Vehicle Controller) version. Contact your John Deere Dealer to obtain the latest software updates for your SSU in order to operate AutoTrac.

NS43404,000015F -19-20JUL10-1/1

AutoTrac Deactivation Messages

Each time AutoTrac is deactivated, a message is displayed in the upper left corner of the perspective view indicating the reason for deactivation. Messages are also displayed indicating why AutoTrac did not activate. The deactivation messages displays for 3 seconds then disappears.

Deactivation Message	Description
Steering wheel moved	Operator turned steering wheel
Speed too slow	Vehicle speed is below minimum required speed
Speed too fast	Vehicle speed is above maximum allowed speed
Invalid gear	Vehicle operating in an invalid gear
Track number changed	Track number changed
Invalid GPS signal	SF1, SF2, or RTK signal was lost
SSU fault	See John Deere dealer
Invalid display messages	Check display settings
Invalid display settings	Check guidance settings and Track 0 setup
No AutoTrac Activation	No AutoTrac Activation on GS3
Heading error too large	Vehicle is at an angle greater than 45 degrees from track
Off-track error too large	Vehicle not within 40% of track spacing
Out of seat	Out of seat too long
Oil temp too cold	Hydraulic oil not above minimum required temperature
No TCM corrections	Make sure TCM is turned on
Invalid SSU activation	Need SSU activation code. See John Deere dealer.
SSU in diagnostic mode	Fuse is in diagnostic slot in vehicle fuse box – remove fuse.
Header off	Header was turned off
Road mode	In transport gear
Invalid SSU voltage	See John Deere dealer
Reverse timeout	In reverse gear for more than 45 seconds
Vehicle too slow	AutoTrac below minimum speed
Curve too sharp	Maximum curvature has been exceeded
Vehicle not moving in a forward direction	Vehicle must be in forward gear to activate
Vehicle shutting down	Vehicle is shutting down
Gear data error	See John Deere dealer
Resume switch error	See John Deere dealer
Keyswitch error	See John Deere dealer
SPFH AutoTrac switch is not on	Make sure SPFH AutoTrac switch is turned on
SPFH Quick Stop switch is on	Make sure SPFH Quick Stop switch is turned off

AutoTrac Deactivation Messages

CZ76372,00000B9 -19-09JUL10-1/1

Device Name, Source Address, and File Directory

File Directory—GS3 claims multiple CAN addresses, some of which are inherited from legacy system to be more compatible with legacy controllers.

Device Name	Source Address
GS3 Basic Perf Monitor (PrF)	0x18
GS3 Virtual Terminal on Implement Bus (VTi)	0x26
GS3 Virtual Terminal on Vehicle Bus (VTv)	0x26
GS3 Guidance (NAV)	0x2a
GS3 Mobile Processor App (MPD)	0x2b
GS3 Original GreenStar Display Emulator (OGM)	0x80
GS3 Documentation (TSK)	0xd2
GS3 KeyCard App (KCA)	0xfc
Mobile Processor	0xD2
Original GreenStar Display	0x80
StarFire Receiver	0x1C, 0x?1C, 0x9C
TCM	0x92
Harvest Monitor for Combines (Gen II Moisture Sensor)	0xD3
Combine Yield Monitor (Gen I Moisture Sensor)	0xD3
Harvest Monitor for Cotton	0xD3
Cotton Mass Flow Sensor	0xB1—0xB8
SPFH Monitor	0xB0
AirCart Controller	0xC4
Planter Controller - SMVR	0xC0
Planter Controller - VRF	0xCE
Sprayer Controller - Liquid	0xE1
Sprayer Controller - Dry	0xCE
SSU	0x13

CZ76372,0000131 -19-13AUG10-1/1

GreenStar Sytem Component Pinout

Circuit ID	Function	Wire Color
070	Ground	Black
182	Constant Power (+12vdc)	Red
209	Any	White
211	Any	Brown
904	Implement Can Hi	Yellow
905	Implement Can Lo	Dk Green
914	Vehicle Can Hi	Yellow
915	Vehicle Can Lo	Dk Green
922	Switched Power (+12vdc)	Red
924	CCD +	Yellow
925	CCD -	Dk Green
998	Audio Mute	Gray
999	Support Wire (dustcaps)	White
992	Constant Power (+12vdc)	Red

OUO6050,0000E50 -19-01SEP09-1/1

26 pin Display (V1) Pinout

Pin	Circuit ID	Function	Wire Color	Cornerpost Display Connector Pin
1	922	Switched Power (+12vdc)	Red	U
2	070	RS232 Gnd	Black	
3	209	Implement Switch	White	M
4		Analog Signal Ground		
5		Analog Signal Input		
6	925	CCD+	Drk. Green	J
7	924	CCD-	Yellow	K
8	182	Constant Power (+12vdc)	Red	R
9	998	Audio Mute (Output)	Gray	H
10		Unused		
11	211	Radar Input	Brown	L
12	915	Vehicle CAN LO	Drk. Green	S
13	914	Vehicle CAN HI	Yellow	T
14	070	Ground	Black	V
15		RS232 Port1 Rx		
16		RS232 Port1 RTS		
17		RS232 Port1 CTS		
18	904	Implement CAN HI		P
19	905	Implement CAN LO		N
20		Digital Output		
21		Digital Input		
22	907	RS232 Port0 Tx		
23	909	RS232 Port0 Rx		
24	906	RS232 Port0 RTS		
25	908	RS232 Port0 CTS		
26		RS232 Port1 Tx		

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EC Declaration of Conformity

Deere & Company
Moline, Illinois U.S.A.

The person named below declares that

Product: GreenStar 3 Display 2630

Fulfills all relevant provisions and essential requirements of the following directives:

Directive	Number	Certification Method
Electromagnetic Compatibility Directive	2004/108/EC	Self certified, per Annex II of the Directive

Name and address of the person in the European Community authorized to compile the technical construction file:

Henning Oppermann
Deere & Company European Office
John Deere Strasse 70
Mannheim, Germany D68163
EUConformity@johndeere.com

Place of declaration: Urbandale, Iowa U.S.A

Date of declaration: 19 July 2010

Manufacturing unit: John Deere Intelligent Solutions Group

Name: Hans Juergen Nissen

Title: Engineering Manager
Ag Management Solutions

CE

DXCE01—UN—28APR09

CZ76372,0000048 -19-20JUL10-1/1

Glossary of Terms

Glossary of Terms	
Term	**Meaning**
AB Curves	Uses a manually driven curved path with two end points (beginning and end) to generate parallel passes.
Accuracy Bar Step Size	Used to set the value of offtrack distance each arrow on the Path Accuracy Indicator represents.
Activated	(4/4 Status of pie with “A”)—Resume switch has been selected and AutoTrac is steering the vehicle.
Adaptive Curves	Uses a manually driven initial pass, then guides off of previous pass.
Ag	The abbreviation for agriculture.
	The agricultural equipment division of John Deere.
AGC	Automatic Gain Control.
AMS	Ag Management Solutions.
Apex	Desktop software for field mapping. The successor to JD Office.
ASRC	Adjustable Seed Rate Controller. Legacy variable rate seeding controller for planters. One of the SeedStar generation 1 controllers. Also known as Variable Rate/Variable Drive, VRD, or VR. Companion to the Seed Monitor.
AT	AutoTrac.
ATU	Universal AutoTrac. A guidance system for vehicles that do not support AutoTrac directly.
AutoTrac	Assisted steering system based on satellite guidance that automatically steers the tractor through the field.
AutoTrac Deactivation Message	Shows operator why AutoTrac deactivated.
C&CE	The consumer and commercial equipment division of John Deere.
C&F	The construction and forestry division of John Deere.
CAN	Controller Area Network.
CCC	Customer Contact Center.
CCD	Chrysler Collision Detection. Later named SBI when it became a commercially available system.
CE	Conformité Européne (European mark signifying compliance of directives).
Circle Track	(Only available with optional PivotPro module.) Uses a center pivot center point location to define concentric circles (tracks).
Configured	(2/4 Status of pie)—Valid AutoTrac Activation, Tracking Mode has been determined and a valid Track 0 has been established. Correct StarFire signal level for AutoTrac Activation is selected. Vehicle conditions met.
DGPS	Differential GPS. A system of increasing the accuracy of GPS using a separately broadcast correction signal.
Display	General term which refers to both Original GreenStar Display and GreenStar 3 Display.
DOP	Dilution of Precision. A term used to quantify the accuracy of a GPS fix.
DRC	Dry Rate Controller.
DTAC	Dealer Technical Assistance Center.
DTC	Diagnostic Trouble Code.
ECU	Electronic Control Unit—A CPU-based device that monitors and/or controls a vehicle function. ECUs are typically networked together using the CAN.
EGNOS	European Geostationary Navigation Overlay Service. The European DGPS signal.
Enabled	(3/4 Status of pie)—Steer Icon has been selected and “Steer On” is displayed.
FD	Field Doc.
FD-MBA	Field Doc Map-Based Application.
Field Doc	A suite of applications on the MP and RCD that record the inputs on a field. The Field Doc applications are capable of recording map-based variable rate inputs.
FlexBox	One of a family of next generation controller systems used throughout the Ag division.
GAI	GPS Accuracy Indicator.
GPS	Global Positioning System.
GSD	GreenStar Display.
GSD2630	One of the RCD GreenStar displays. A 10.4" VGA color touchscreen in a metallic silver housing.
Guidance Off	For use when only documentation is needed.
GVC	Global Vehicle Communications.
Harvest Doc	A suite of applications on the MP and RCD that record the crop yield on a field. The Harvest Doc applications are capable of recording map-based crop yields.
HDOP	Horizontal Dilution Of Precision.
Installed	(1/4 of Status pie)—AutoTrac SSU and all other hardware necessary for use are installed.

Continued on next page

Glossary of Terms	
Term	**Meaning**
ISO	International Standards Organization.
KeyCard	PCMCIA card that holds and activates all AMS software on the Mobile Processor.
L-Band	Frequency band containing the StarFire correction signals transmitted from the Inmarsat satellites.
L1	One of the frequencies used by the GPS satellites.
L2	One of the frequencies used by the GPS satellites.
L5	A new frequency available in Block III GPS satellites for additional accuracy.
LCD	Liquid Crystal Display - a low power, flat panel display.
Lead Compensation	Shows how far down current track guidance looks to for such things as turns. Used with Parallel Tracking only.
LED	Light Emitting Diode.
MP	Mobile Processor.
NA	North America.
NMEA	National Marine Electronics Association.
NMEA-0183	The standard for GPS data transmission between the receiver and any downstream processor.
PDOP	Position Dilution of Precision.
Performance Monitor	Means of displaying status information gathered from the cab of John Deere equipment. This includes fuel consumption and equipment performance.
PF	Precision Farming.
PLD	Programmable Logic Device.
RCD	Reconfigurable Display (successor to the GreenStar Display).
RS232	A serial communication interface specification with bandwidth up to 115k bits per second at up to 50 feet.
RTK	Real Time Kinematic. A local, ground based differential correction technique involving a fixed receiver calculating position offset vectors.
Row Finder	Used in standing row crop applications to mark end of a pass and guide operator to next pass.
SF	StarFire.
SF1	StarFire differential GPS with standard accuracy, ~14 inches pass-to-pass at 2σ.
SF2	StarFire differential GPS with enhanced accuracy, ~4 inches pass-to-pass at 2σ.
Set Track 0	Allows the operator to set initial track which all subsequent tracks are created from.
SM	Seed Monitor. Legacy seeding monitor controller. One of the SeedStar Generation 1 controllers. Companion to the ASRC.
SNR	Signal-to-Noise Ratio.
SPFH	Self Propelled Forage Harvester—A machine to harvest crops such as hay or corn for use as animal forage.
SSU	Steering System Unit. The controller on the vehicle that transforms errors in position or heading to commands for the steering actors.
StarFire	The AMS GPS receiver system. This consists of a multichannel receiver that operates on the L1 and L2 bands, an antenna, a sealed housing, and a terrain compensation unit (on later versions). All versions of the StarFire receiver can receive the GPS L1 & L2 signals, the WAAS differential correction signal, and the SF1 and SF2 correction signals. All versions produce a 5Hz CAN bus output and a NMEA 0182 standard output on the RS-232 interface.
	The Navcom differential satellite correction signal. Navcom tracks the GPS satellites using a global network of base stations. The data from these stations is processed and correction terms are generated to compensate for satellite position and clock errors. There are two classes of StarFire correction service: SF1 provides a two-sigma pass-to-pass accuracy of fourteen inches, and SF2 provides four-inch accuracy.
Shift Track	Used to adjust position of machine left, center or right of set track. Shift track can be used to compensate for GPS drift. Drift is inherent to any satellitebased, differentially corrected GPS system.
Straight Track	Uses straight line parallel passes.
TCM	Terrain Compensation Module (formerly known as the IMU)—Corrects GPS data for Roll angle and yaw angle errors.
TECU	Tractor ECU. This is defined in ISO 11783 Part 9.
Tracking Tones	Can be set to alert operator at a specified offtrack distance.
Turn Predictor	Alerts operator by predicting the end of pass. This feature can be turned on or off by selecting or deselecting Turn Predictor check box.
Turning View	Can assist operators to guide vehicle from one pass to the next by showing an overhead view of the field.
USB	Universal Serial Bus.
VDOP	Vertical Dilution Of Precision.
VR	Variable Rate Controller. Another term for the ASRC. One of the SeedStar Generation 1 controllers.

Continued on next page

Glossary of Terms	
Term	**Meaning**
VRF	Variable Rate Fertilizer Controller. Planter controller used to control the variable application of liquid fertilizer.
VT	Virtual Terminal.
WAAS	Wide Area Augmentation Service.
Wedge Box	One of a family of general and special purpose controllers used throughout the Ag division.
WW	Worldwide.

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John Deere Service Literature Available

Technical Information

Technical information can be purchased from John Deere. Some of this information is available in electronic media, such as CD-ROM disks, and in printed form. Search online from http://www.JohnDeere.com. Please have available the model number, serial number, and name of the product.

Available information includes:

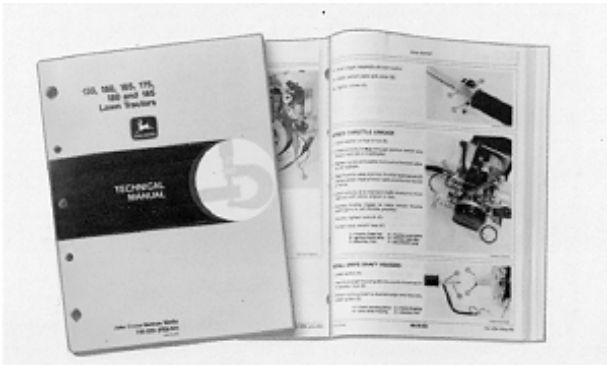
- PARTS CATALOGS list service parts available for your machine with exploded view illustrations to help you identify the correct parts. It is also useful in assembling and disassembling.
- OPERATOR'S MANUALS providing safety, operating, maintenance, and service information. These manuals and safety signs on your machine may also be available in other languages.
- OPERATOR'S VIDEO TAPES showing highlights of safety, operating, maintenance, and service information. These tapes may be available in multiple languages and formats.
- TECHNICAL MANUALS outlining service information for your machine. Included are specifications, illustrated assembly and disassembly procedures, hydraulic oil flow diagrams, and wiring diagrams. Some products have separate manuals for repair and diagnostic information. Some components, such as engines, are available in separate component technical manuals
- FUNDAMENTAL MANUALS detailing basic information regardless of manufacturer:
  - Agricultural Primer series covers technology in farming and ranching, featuring subjects like computers, the Internet, and precision farming.
  - Farm Business Management series examines "real-world" problems and offers practical solutions in the areas of marketing, financing, equipment selection, and compliance.
  - Fundamentals of Services manuals show you how to repair and maintain off-road equipment.
  - Fundamentals of Machine Operation manuals explain machine capacities and adjustments, how to improve machine performance, and how to eliminate unnecessary field operations.



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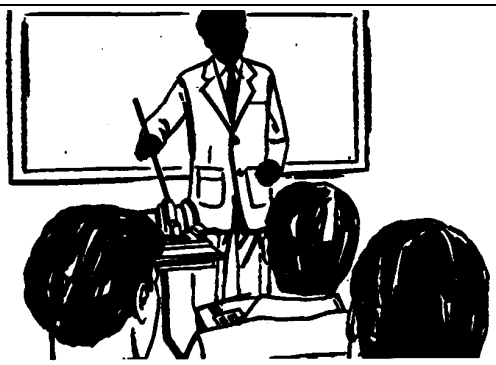
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